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Northwest Territories Local Government
Water and Sanitation Section

GUIDELINES FOR THE PREPARATION & ADMINISTRATION OF MUNICIPAL WATER & SANITATION TRUCKED SERVICE CONTRACTS

Prepared by

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Northern Civil and Environmental
Engineering Consultant,
Edmonton, Alberta.

August 1981

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prepared for

Department of Local Government
Government of the Northwest Territories
Yellowknife, N.W.T.

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1 INTRODUCTION

Today northern communities are responsible for managing many varied and complex operations. But the expertise and the time to administer these operations is often not available. One such operation is the provision of trucked municipal water and sanitation services.

At present some truck services are operated inefficiently and many contract agreements are inconsistant and incomplete. Inadequate contract specifications can result in misinterpretation and lack of control which can lead to higher costs and inefficient and poor service as well as frustration and dissatisfaction between the municipality, the Contractor and the public. The same problems arise if the administration system and procedures are not well organized and comprehensive.

The objective of this Guideline is to assist the Municipalities in providing effective and efficient trucked water, pumpout sewage, bagged/bucket sewage and garbage services. It is meant as a guide for municipal administrators, public works supervisors, contract managers and any others who may be responsible for the operation or management of truck services. The Guideline contains background and support information and options for policy decisions as well as recommended procedures and instructions for administration and contracting.

Sections 2 and 3 of the Guideline deal with the physical operations and characteristics of truck systems; the operation and contract considerations; payment to Contractors; and charges to customers. This background knowledge is fundamental in making informed decisions with respect to the administration and contracting. Section 3 contains suggestions for simple administration procedures to keep track of customers and their accounts and to manage Contractors. Examples of customer account cards, utility bills and other administration forms are provided. The last Section, Section 4, deals with contracts and tendering. Step by step procedures to prepare and implement a negotiated or a tendered contract are presented. An example contract document which can be used as a model to prepare tender documents and contracts is provided in an Appendix. Other topics that are addressed in Appendices inlude vehicle specifications, truck system time and cost estimating equations, rate structures and examples of a contract authorization and amendment.

2. TRUCK SYSTEM OPERATIONS

2.1 General

The purpose of this Section is to provide information on trucked system operations. It is necessary to have some appreciation and knowledge of the work, operations, equipment and costs for truck operations in order to make the operation, administration and contract decisions discussed in later Sections of this Guideline. The information in this Section will be valuable to those responsible for actual trucked operations or the mangement of contracted services.

In this Section the operations of each of the trucked services; water delivery pumpout sewage, bagged/bucket sewage and garbage, are discussed. The delivery and collection procedures, the truck and in-house equipment and the quantities are presented for each service. The sequence of operations and a mathematical model of the operations is then considered. The model and experience are used to analyse the methods of scheduling services. Finally, cost factors for truck operations are presented.

The information in this Section is meant only as an overview. Some design information on the components and operations is included in the Appendices. Additional information is available in other publications such as the "Cold Climates Utilities Delivery Design Manual".

2.2 Water Delivery Operations

Trucked water delivery is provided in portions of most N.W.T. communities and is the only system in many of the smaller communities. Truck systems are cost-effective where piped water and sewer systems are expensive to construct and operate because of permafrost, rock or low density. Other attractive features of trucked systems may include: the low levels of technology, capital and water required; the flexibility; and the local employment. The quality and level of service to customers is primarily dependent on their own in-house plumbing.

The truck water delivery system, operations and equipment and the quantities of water use are discussed below.

2.2.1 **Source.** Although it may be possible to obtain water directly from the source the more common method is to fill the water trucks at a truck-fill station. This truck fill station is usually located centrally in the community and is supplied from a piped water system. There are various types of truck-fill stations but the most common is a simple overhead filling system. Water is usually metered. The station is usually a part of the utility system and may be used by more than one water deliverer.

2.2.2 **Delivery Equipment and Method.** Water delivery trucks are usually rubber tired with 4.5 cubic meter (1000 imperial gallons) insulated tanks equipped with pump, a water meter and a delivery hose on an automatic reel. Where road conditions are adequate, 6.85 cubic meters (1500 imperial gallons) trucks are commonly used but larger capacity trucks are generally too large and heavy and are difficult to manoeuvre. Where road or snow conditions are poor, four wheel drive and floatation tires have been used. Specifications for G.N.W.T. water trucks are provided in Appendix B and costs for various vehicle sizes are provided in Appendix C. A 6.85 cubic meter water truck with equipment compartment at the rear is illustrated in Photo 2.1.

Sufficient water is delivered to customers to fill or "top-up" the water storage tank (cistern) in the building. All deliveries are metered and recorded, usually by a meter equipped with a printout. One or two man crews are used, the former being more common with Contractors.

The quantity of water that can be delivered by one truck depends on the distance between the truck-fill point and the customers, the speed of the vehicle, the number of deliveries and other factors. Typical values are 15,000 to 30,000 litres per day, the higher value being achieved when the truck water source is quite close to the community (see Figure C.2).

2.2.3 **In-house Equipment.** Each building is equiped with a water storage tank (cistern).Having the operator go into the building to fill the tank directly is inconvenient to the customer and the operator. The usual method is to fill the tank via a fill pipe which is accessible from outside the building. The fill pipe may terminate some ways from the building at a place that is more easily accessible to the water truck. Water can be pumped into the fill pipe similar to filling a vehicle gas tank or a quick coupler can be used to connect the delivery hose and the fill pipe. An overflow pipe from the tank must be provided. An indicator light or air whistle can be installed to inform the operator when the tank is full. This prevents spillage and dangerous ice buildup.

Water can be obtained from the tank directly but buildings with plumbing and fixtures use a small pressure pump to supply water within the building.

The size of a building water tank depends on the water use and the frequency of water deliveries. Existing residential tanks are 1200 to 2400 litres (250 to 500 imperial gallons) in houses with full plumbing and 200 to 1000 litres (45 to 200 imperial gallons) in non-pressure houses. Guidelines for Sewage Holding Tanks and Drinking Water Storage Tanks have been drafted as an appendix to the "Private Sewage Systems Regulations" put out by Health and Welfare Canada for the N.W.T. An excerpt from these guidelines follows:

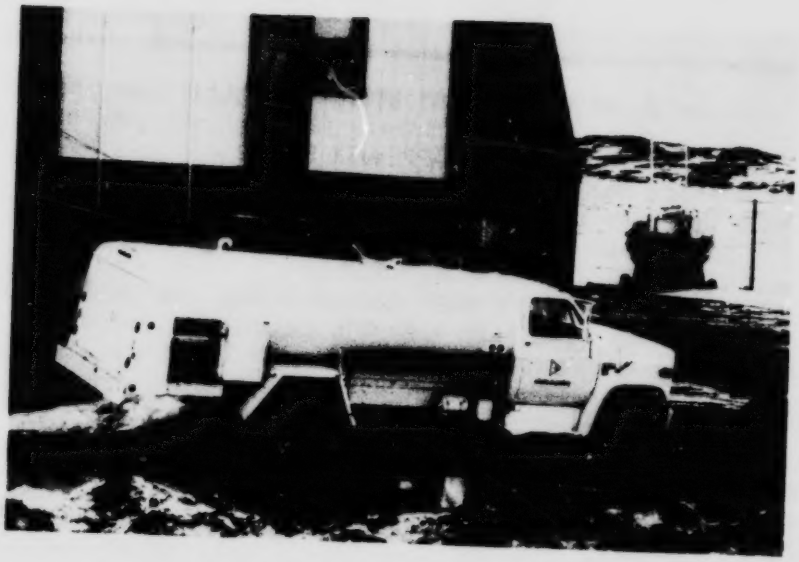

Figure 2.1 Water Delivery Truck

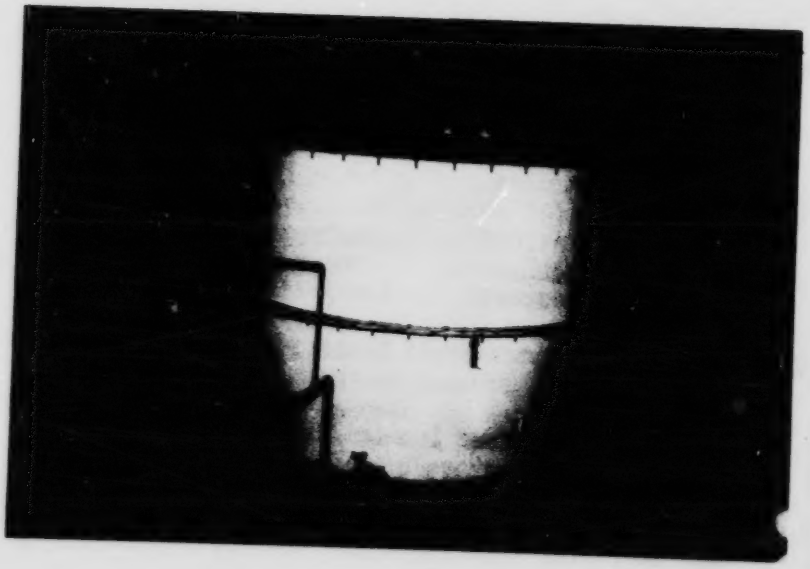

Figure 2.2 Household Water Storage Tank and Pressure Pump

PRIVATE SEWAGE SYSTEMS REGULATIONS

APPENDIX B

DRAFT
September 10, 1979

GUIDELINES FOR SEWAGE HOLDING TANKS AND DRINKING WATER STORAGE TANKS

The purpose of these guidelines is to provide uniformity between government agencies; to reduce service costs in maintaining trucked water delivery and trucked sewage collection; to provide the best services possible so that the health standards are met or are being improved to eventually meet the health standard.

These guidelines should be used only when new buildings are being constructed, or renovations to existing buildings, or, where there is a definite health concern in evidence. Existing buildings stay "as is" if they do not fall within the aforementioned conditions.

The following shall apply:

1) Minimum size for drinking water storage tanks will be 1820 litres (400 imperial gallons)

   This shall apply up to and including a three bedroom home.

"ESTIMATED CALCULATIONS" = 5 people x 91 litres (20 imperial gallons) per person per day x 4 days of holding capacity = 1820 litres (400 imperial gallons)

2) Larger size homes shall be based on the same "estimated calculations"

   re: 4 bedroom home (up to 7 people)

   therefore 7 people x 91 litres per person per day x 4 days of holding capacity - 2548 litres (560 imperial gallons) size drinking water storage tank.

3) The sewage holding tanks shall be 1-1/2 times larger than the drinking water storage tanks with a minimum size of 2730 litres (600 imperial gallons).

The water tank must be covered, preferably with a sealed lid. The tank must be accessible for internal cleaning.

Photo 2.2 illustrates a fiberglass household water storage tank and a pressure pump. The connections for the fill and overflow pipes and the waterlevel indicator light are on the top of the tank.

Bylaws to improve the efficiency of water delivery may include settling minimum tank sizes, requiring a remote fill pipe and indicator lights, and specifying the type of connection and building access. The tank and plumbing are also subject to health regulations.

2.2.4 **Summer Piped Water System.** It is much cheaper to install and operate water supply pipes for summer operation only and in summer water use can be high due to outdoor water use. Thus it may be economical and desirable to provide a summer piped water system. Small diameter plastic pipes on the surface are usually used. They are drained at the end of the summer use. The maximum period of use in the N.W.T. is about four months. Each customer taps off the pipeline to the building plumbing directly or to the building water tank.

2.2.5 **Water Consumption.** Household water use depends on many factors including the type of plumbing fixtures, family size (i.e. number of occupants), socio-economic status, climate, rate structure and price and the individuals lifestyle and habits.

In residences without pressure water or plumbing the water use is about 10 L/person/day, with very little variation. Such a low water use is not conducive to proper hygiene and good health and the Government of the Northwest Territories (G.N.W.T.) has programs to improve the situation. Houses with a pressure water system, full plumbing and appliances have a much higher water consumption. Data from an area of Yellowknife, N.W.T. that is serviced by truck indicates that a four-person household with full conventional plumbing uses 95 L/person/day. This is much less than the typical household value of 225 L/person/day for houses served by a piped water system. The lower trucked water use is attributed to a general consciousness of a limited quantity of water available in the water tank. This causes the people to modify their habits to reduce waste and to prevent leakage. Another factor is the lower water pressure compared to house served by a piped distribution system. However, the data from Yellowknife also indicated a range of water use from 45 to 295 L/person/day which means that some people are not influenced by the delivery system.

Data from Frobisher Bay indicates that in houses that were not metered and when only a flat rate was charged, the water use was approximately 180 L/person/day. Many water use studies for piped systems also show this characteristic doubling of water use when water is not metered.

Water use can be significantly reduced through water conservation. Cameron and Armstrong (1979) have studied water use and conservation methods for the North. They indicate that if a recirculating toilet, low-flow shower, front load automatic clothes washer and other miscellaneous cost-effective water conserving plumbing fixtures are installed then the typical household water use could be reduced in half, to 50 L/person/day, with little or no conscious effort on the part of the householder to conserve water.

Non-residential water use is more difficult to estimate. Each building should be considered separately, especially high water users such as a hotel, school or laundromat. Equally important is the type of plumbing fixtures installed.

2.3 Pumpout Sewage Operations

Pumpout sewage service is usually used in conjunction with trucked water delivery and many of the previous comments on the applications of trucked water delivery also apply to pumpout sewage.

The building sewage holding tanks, the collection methods and equipment, the disposal of pumpout sewage and the quantities of sewage are discussed below.

2.3.1 Sewage Holding Tanks. Pumpout sewage service is usually only used by buildings with internal plumbing systems. All the sewage flows into a sewage holding tank which may be located under or near the building. Tanks are usually insulated. The usual method of emptying the tank is via a suction hose from the collection truck, therefore vehicle access must be provided within 5 m of the tank or connection. To empty the tank the suction hose from the truck can be shoved into the tank but this method is unsanitary and is discouraged. The better and most common method is to provide a connecting pipe from the tank which the operator connects the truck suction hose onto. The tank pipe requires a cap to prevent cold air from entering the tank and possibly freezing the contents. The tank must be vented. Warning lights can be installed to indicate when the tank is almost full and requires servicing. For public buildings a switch to cut off the water supply when the tank is full is desirable.

The sewage holding tank size depends on the water use and the frequency of service. Typical residential sizes are 2250 to 4500 litres (500 to 1000 imperial gallons). In the "Private Sewage System Regulations" for the N.W.T. it is specified that sewage holding tanks shall be 1.5 times larger than the building water storage tanks but the sewage holding tank minimum capacity is 2730 litres (600 imperial gallons).

Figure 2.3 illustrates some of the features of a sewage holding tank to make it compatable with new sewage pumpout equipment purchased by the G.N.W.T. Figure 2.4(a) illustrates a tank located under a house. In Figure 2.4(b) the tank, which will be buried, is located close to the road and is connected to the house by an insulated sewer pipe.

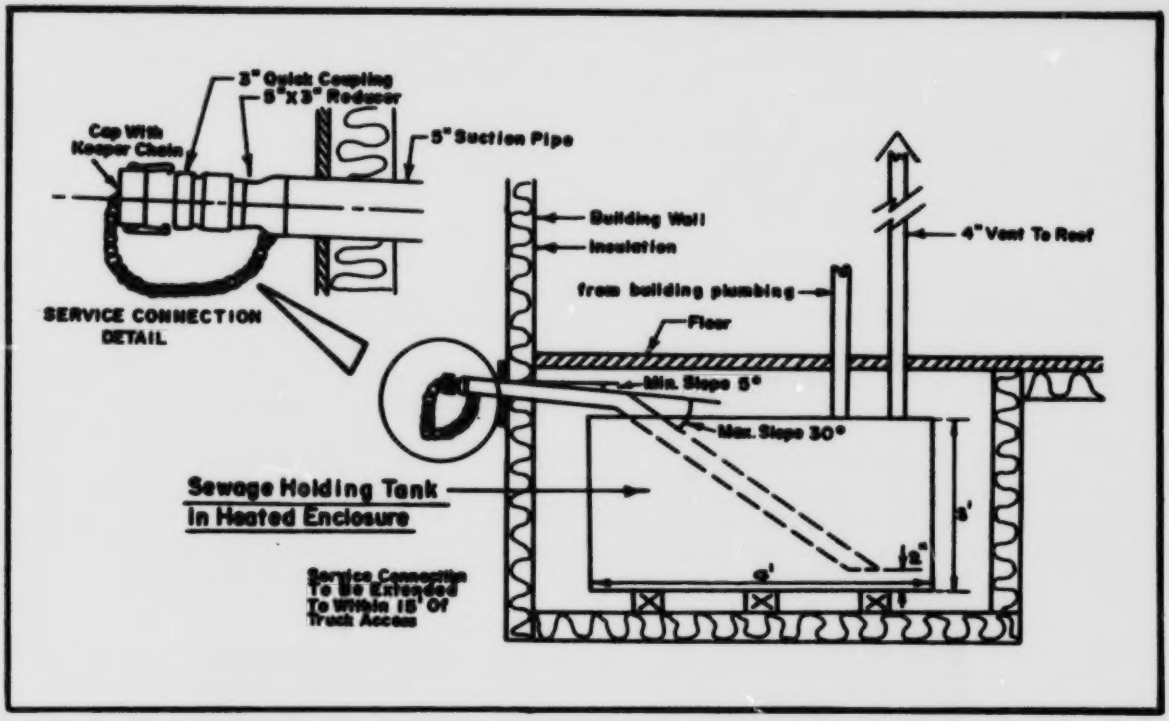

Figure 2.3 Sewage Holding Tank and Service Connection

(a) Located under a Building (b) Located Adjacent to a Building

Figure 2.4 Sewage Holding Tanks

Figure 2.5 Sewage Pumpout Truck

2.3.2 **Collection Equipment and Method.** Pumpout sewage trucks are usually rubber tired with 4.5 cubic meter (1000 imperial gallon) to 6.85 cubic meter (1500 imperial gallon) tanks. The tanks are not usually insulated. The most common system is a vacuum tank with the vacuum pump powered from the truck engine (PTO). G.N.W.T. specifications for sewage truck are provided in Appendix B and costs for various vehicle sizes are provided in Appendix C. Photo 2.5 illustrates a 4.5 cubic meter sewage pumpout truck.

Sewage is evacuated into the truck tank through a suction hose which is shoved into the building holding tank or connected onto a standpipe from the holding tank. Sewage meters are expensive and uncommon, consequently sewage quantity is not measured. Sewage is collected from buildings until the truck tank is full, the operator then drives to the disposal location and discharges the sewage.

2.3.3 **Disposal.** Sewage collected by truck is hauled to the sewage treatment/disposal site, which is usually a lagoon. To reduce the haul distance, sewage is often discharged into an outfall or a piped sewer system at a lift station or manhole.

Sewage collected from holding tanks is usually of higher strength than piped sewage because of the lower water use. This high strength will not affect a lagoon treatment system but a buffer tank which is used to equalize the wastewater flow and strength is generally required preceeding a secondary treatment plant.

2.3.4 **Sewage Production.** The volume of sewage produced is usually assumed to be equal to the building water consumption. Since sewage is not metered, the quantity is estimated from water deliveries or by a building water meter.

2.4 Honeybag/Bucket Sewage Operations

This system is provided to collect human excrement. Buildings that use this service usually do not have internal plumbing or pressure water and they can not use an outhouse due to permafrost, rock, housing density or inconvenience. The G.N.W.T.objective is to encourage the provision of pumpout sewage or piped sewage collection systems but bagged/bucket sewage service will be required for many existing buildings for quite some time.

2.4.1 **Collection Systems.** The two basic systems used are the bag and the bucket systems. The former method consists of putting a plastic liner into a bucket toilet. The full bag is tied and hauled outside to a container for storage until collection. The less common

bucket system consists of placing a sealed lid on the bucket containing the excrement and putting it out for collection. The buckets are collected, emptied, cleaned and returned.

The in-house equipment depends on the system that is used. Usually the user must put out the bag or bucket for collection but collection from within the building or by an access hatch have been used.

2.4.2 **Collection Equipment.** The method of collection and the equipment depend on the system. Vehicles used are usually small rubber tired trucks, often 4 x 4. The box should be leakproof, even if the bags are put into containers on the truck. Trucks with a vacuum tank have been used.

The G.N.W.T. Water and Sanitation Policy recommends that bagged sewage be collected five times per week with no two consecutive non-service days. This high frequency reduces the length of time the bags are stored outside and therefore the chances of the bags breaking or being lost under the snow.

2.4.3 **Disposal.** Bagged sewage can be hauled to a land disposal site. This is usually at the garbage site but a separate area is used. Often a pit is dug and covered when full. Alternatively, bagged or bucket sewage can be discharged with other liquid sewage. A disposal station for this operation is required. The separating of plastic bags is a difficult and expensive proposition.

2.4.4 **Volume.** The average volume of human waste produced is 1.5 L/person/day.

2.5 Garbage Operations.

Garbage collection service is required for all buildings in the community. The only practical method of collecting garbage is by truck. The collection systems, equipment, disposal and quantities are discussed below.

2.5.1 **Collection Systems.** The two basic garbage collection systems are: individual small containers and large central bins. The individual container system is the most common in residential areas. The large bins are used for large office buildings, apartments, institutions or commercial buildings. A central bin could be used to serve a number of nearby small buildings or residences. The bin system requires special vehicles to lift and empty them. It is generally more applicable in communities with a number of large buildings.

The type of in-house containers depend on the collection system. Individual residential garbage cans are about 0.1 cubic meters while bins are usually 1 to 5 cubic meters. The types of acceptable containers and access requirements are usually specified in By-laws.

2.5.2 **Collection Equipment.** The use of open trucks is inefficient and may result in the scatter of garbage. In the N.W.T. all but the small communities use enclosed packer type vehicles. This equipment is similar to that used in southern communities. These vehicles range from 8 cubic meter capacity units mounted on a pick-up truck chassis to over 20 cubic meters. Vehicles to empty bins are usually in the large range. Most of these units can be efficiently operated by one man. Photo 2.6 illustrates a small side loading unit being loaded.

2.5.3 **Disposal.** Garbage disposal in the N.W.T. is usually by a modified landfill operation which means the garbage is periodically compacted and covered. Separate areas should be set aside for bulky non-organic waste such as vehicle bodies. Special provisions must be made for handling toxic or hazardous wastes which should not be mixed in with the garbage.

Figure 2.6 Garbage Collection

2.5.4 **Quantities.** Residential garbage production in small northern communities have been measured at from 0.005 cubic meters/person/day to 0.015 cubic meters/person/day. The former value is where the garbage is burned before collection while the latter value is about the average for southern households. Non-residential buildings will generate garbage depending on their use. Typical total community garbage production is about 2.5 kg/person/day or 0.02 cubic meters/person/day.

2.6 Work Components

In this subsection the work involved in providing truck services is analysed and an important aspect of the operations, the scheduling of services, is considered.

2.6.1 **Sequence of Operations.** The sequence of operations to provide water, sewage and garbage services is basically the same. For water delivery the operations are as follows:

> The water truck is filled at the source and travels to the community buildings where building tanks are filled until the truck tank is empty. The truck then returns to the source.

For pumpout sewage, bagged/bucket and garbage services the operations are as follows:

> The truck is emptied at the disposal point and travels to the community buildings where wastewater is collected from the building containers until the truck is full. The truck then returns to the disposal point.

It takes a certain length of time to perform each of these operations. For example, the travel time depends on the distance and the speed of the vehicle and the time at each building includes the turn-around time (hook-up and un-hook) and the pumping time (volume ÷ pumping rate). A mathematical model has been developed for these operations. The equation and some applications and data are supplied in Appendix C.The equations can be used to estimate the total annual number of hours that are required to provide any of the trucked services. From the total hours you can calculate the labour, vehicle and garage requirements and thus the costs for these items. An equally important application of the equations is to indicate the change in time and costs resulting from changes in equipment, such as vehicle and building container size and changes in the quantities or frequency of service. Since many of the truck operation factors are interdependent it is not always accurate to rely on judgement to estimate the effects of these changes. This is shown in the following discussion of the scheduling of services.

2.6.2 **Schedule of Services.** There are two ways of providing services, either at a specified frequency or on demand. Each is appropriate and and economical for different conditions and situations and each may be appropriate for different buildings or customers within the same community. These methods are considered below.

Specified Frequency. A frequency and the days of scheduled service are specified and guaranteed to the customer. This offers security and convenience to the customers and simplifies the service operations. This is the only schedule method used for bagged/bucket sewage and garbage service and is the most common method used in the N.W.T. communities for trucked water and pumpout sewage service. The frequency for the former services are set by community and in-house sanitation requirements but for water and pumpout sewage services convenience and economics must be considered.

If the frequency is short, such as daily, the quantity of water delivered or sewage pumped out at each servicing will be small and the cost of service will be needlessly high. As the frequency is increased the truck operating costs are reduced. However, costs are only reduced up to the point when each delivery would be a full truck load. For any higher frequency there is no cost saving. This is indicated by the results in Table 2.1 of an economic analysis of container and trucking costs for a group of 200 houses with five persons per house and water use of 90 L/person/day. In the example truck operating costs are reduced by 20% when the frequency is increased from daily to every second day but costs are not reduced for any frequency greater than every 10 days. When the building container costs are included, the most cost-effective frequency is four days. Twice weekly service is common.

TABLE 2.1 CONTAINER AND TRUCKING COSTS (Cameron, 1979)

Time Between Service (days)	Minimum Building Container Size (Litres)	Annual Container Costs ($)	Annual Trucking Costs ($)	Present Value of Container and Trucking Costs ($)
1	450	40,000	1,068,000	12,410,000
2	900	60,000	850,000	10,350,000
3	1350	79,000	783,000	9,810,000
4	1800	98,000	730,000	9,510,000
5	1800	117,000	717,000	9,510,000
6	2750	136,000	709,000	9,610,000
7	3150	154,000	703,000	9,730,000
10	4500	205,000	665,000	9,840,000
20	9000	360,000	665,000	11,380,000

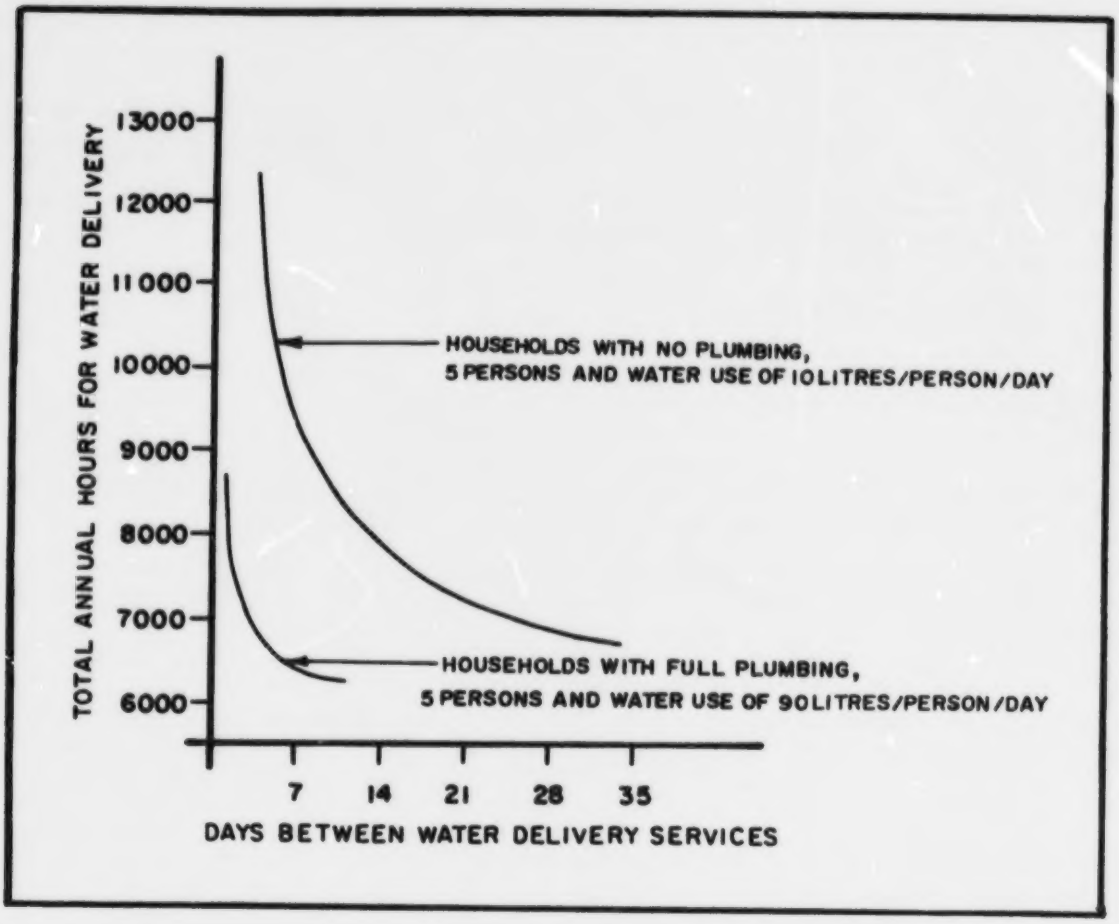

Figure 2.7 Influence of Frequency on the Total Annual Hours Required for Water Delivery

The previous results are valid only for a water use of 90 L/person/day. Figure 2.1 illustrates the influence of frequency on the total hours to deliver the same total quantity of water to houses with full plumbing (90 L/person/day) and to houses with no pressure water or plumbing (10 L/person/day). The results in this Figure indicate that the optimum frequency of service is higher for buildings with low water uses. To deliver the water with the same efficiency, i.e., the same number of hours, the time between deliveries would have to be nine times (90 divided by 10) that for houses with full plumbing.

The results in Table 2.1 and Figure 2.1 would only be valid where the buildings are close together. The further apart the customers are, the more economical it becomes to increase the frequency and delivery larger quantities of water at each servicing.

The previous examples indicate the possible inefficiencies in establishing a single frequency for all buildings, irrespective of water use and location. Large water users such as a school or laundromat may require daily service. Once or twice a week seems to be appropriate for houses with full plumbing. It is quite expensive to provide low water users with more than weekly service.

Irrespective of the frequency of service there is a risk of running out of water or of overflowing the sewage holding tank. The risk can only be alleviated by installing a tank with a capacity greater than the water use between servicing. Extra capacity is also required since water use varies and, at times, service may be delayed.

If the frequency is specified, there is no need to also specify minimum building tank sizes, at least as far as the trucked operations are concerned. However schedules, building occupancy and water use can change and many builders and buyers can not do a cost-effectiveness analysis. For these reasons minimum tank sizes are often specified in By-laws and public health regulations.

Service on Demand. Service is provided when requested or needed. The customer can notify the Contractor by telephone or by displaying a sign or the Contractor can estimate water use and schedule services to each customer. A light or other system can be used to indicate when a tank needs servicing. Such a system is essential for sewage holding tanks to ensure they do not overflow.

If service is on demand it is important to charge the customers for each servicing and/or to specify minimum building tank sizes in order to reduce the required frequency of servicing. Unless the building tanks are quite large, e.g., approaching the size of the truck tank, this method will probably be less efficient than a specified frequency service.

This method seems to be applicable and economical for trucked water and sewage service when the customers are spread out or isolated and when each servicing is for a full truck load.

However schedules and building occupancy can change and many builders can not do a cost-effectiveness alalysis. For these reasons minimum tank sizes are often set by Bylaws and public health regulations.

2.7 Cost Components

The cost for trucked services will vary with the local conditions and with time. For these reasons it is not practical or even desirable to reproduce historic costs for trucked operations. As costs are certainly important, the breakdown of trucked operation costs are presented in this subsection. The breakdown of costs by component and into fixed and

variable costs should be useful in appreciating and understanding the actual costs or bids. Some knowledge of the costs is also important when negotiating contracts for providing trucked services.

Table 2.2 indicates a range and typical breakdown of costs by components. The actual values can vary. Equipment may already be depreciated (i.e. written off) and some Contractors may emphasize preventative maintenance and pay high wages to attract trained workers. There are also considerable differences in the accounting system and allocation of costs. The items and costs included in the components in Table 2.2 are outlined below:

Labour. This includes direct labour and benefits for truck drivers and helpers. Benefits include sick leave, vacation and other employer costs which may be 10 to 20% of wages.

Vehicle. This includes the vehicle capital costs depreciated over four or five years, which amounts to about one-third of vehicle costs. The remainder is for operating costs such as insurance, parts, repairs and maintenance including all of the mechanics costs. Gas and oil usually amount to about five percent of the total cost.

Garage. Capital cost depreciated over 15 to 20 years accounts for about two-thirds of the garage costs. The remainder is for maintenance, repairs, utilities and insurance.

Administration. This includes the office overhead items, accounting and legal costs, interest (bank charges), supervision, taxes and licenses and miscellaneous costs.

Profit. The typical value of 10% is not the rate of return. Instead, the total dollar value it represents is considered to be a fair return to the Contractor for his investment and risk. The "profit" as a percentage of the total contract value will be lower on large contracts.

The cost breakdown values in Table 2.2 are typical long term average values. Short term fluctuations in the relative costs for labour, energy and interest rates can distort the actual values at a particular point in time but the costs will probably fall within the range of values that is suggested.

The cost breakdown would have to be adjusted if the Contractor performed special added tasks such as billing the customers or maintaining the disposal site. The cost breakdown would also be different if the Municipality did the work themselves. For example, there would be no profit.

Truck operations costs can also be divided into fixed and variable costs.

Variable Costs. These are costs that are directly related to the amount of work done. It includes labour and vehicle operating costs such as fuel and regular maintenance. Variable costs are typically about 60% of the total cost.

TABLE 2.2 COST BREAKDOWN FOR TRUCED OPERATIONS

Components	Percentage of Total Costs	
	Range of Values	Typical Value
Labour	40 to 55	45
Vehicle - Capital	6 to 9	25
- O&M	14 to 21	20 to 30
Garage - Capital	3 to 6	8
- O&M	2 to 4	5 to 10
Administration	7 to 20	12
Profit	5 to 15	10
		100%

TABLE 2.3 INFLUENCE OF QUANTITY OF OPERATIONS ON TOTAL COSTS

Change in Quantity of Operations	Change in Total Costs of Operations	Change in Unit Prices
Reduction by 50%	Decrease by 30%	Increase by 40%
Reduction by 40%	Decrease by 24%	Increase by 27%
Reduction by 30%	Decrease by 18%	Increase by 17%
Reduction by 20%	Decrease by 12%	Increase by 10%
Reduction by 10%	Decrease by 6%	Increase by 4.4%
Increase by 10%	Increase by 6%	Decrease by 3.6%
Increase by 20%	Increase by 12%	Decrease by 6.6%
Increase by 30%	Increase by 18%	Decrease by 9.3%
Increase by 40%	Increase by 24%	Decrease by 11%
Increase by 50%	Increase by 30%	Decrease by 13%

Fixed Costs. These are the costs that do not vary with the daily operations. It includes the vehicle capital, some repair and maintenance, the garage capital and O&M, and part of the administration and profit. Some of these fixed costs can, in fact, be variable. For example, vehicles could be bought and sold in response to the workload. Fixed costs are typically about 40% of the total cost.

This breakdown into variable and fixed costs is important when it comes to assessing the influence of price increases (e.g. inflation) and changes in the quantity of work. If the quantity of work changes it is often necessary to negotiate new prices. Table 2.3 indicates the required response in prices to maintain the necessary revenue when variable and fixed costs are 60% and 40% respectively. For example, if the total quantity of water delivered was 20% lower than the estimate upon which the unit price was based, then the unit price should be increased by 10% to cover the Contractors fixed costs.

This is a somewhat idealized case and the results should be used with caution, especially for large and short term changes in the quantity of operations.

3. TRUCKED SYSTEM OPTIONS AND DECISIONS

3.1 General.

The purpose of this Section is to outline the major decisions that you and the Municipality must make in providing trucked water, sewage, bagged/bucket and garbage services. The first decision is who will do the work. The pros and cons of contracting the operations or the Municipality carrying them out are presented. The methods of contracting the operations and contract considerations such as the scope, the duration and paying the contractor are considered. The last part of this Section presents the principles and options in establishing customer charges for trucked services.

The options in each of these areas (i.e. operations, contracts and pricing policy) must be considered and decisions and policies made before the administration system can be established and service contracts drawn up. Although most of the options are common sense, some may be new to you and more appropriate than the present methods or policy. There is always a strong tendency to conduct operations the way they are now. But conditions are always changing. Populations increase, the economy adjusts and political policies change. For these reasons truck system options should be periodically reviewed.

A sure way to preclude improvement is to let decisions be made by default.

3.2 Operation Considerations.

The major operation option to consider is whether the Municipality wants to conduct the operations itself or to contract out the work. If the work is contracted you must decide on materials or equipment the Municipality will supply and who will handle billing the customers, the complaints, and the schedule of service and who will manage the disposal sites. These options are discussed in this subsection.

3.2.1 Who Does the Work? Trucked services can be public or contracted services. Although both options are sometimes used for different services and a large city may use both for the same service, the usual situation is all or none. If contracted, the operations may be under a contract directly with the Municipality or a franchise arrangement. With the latter method a Contractor is given the responsibility and exclusive rights to provide services in a specified area for a specified time period.

There are no community characteristics that could be used as a guide as to whether public or contracted services are more appropriate and economical. The decision depends largely on the local public and political objectives and policies, the availability of a qualified Contractor and the relative economics of Municipal and contracted operations. There are advantages and disadvantages to each alternative. These are discussed below.

Public vs. Contracted Services. A major consideration in the decision between public and contracted services is the cost. If contracted, the Municipal expenditures are for the Contractors charges and for regulatory, inspection and administration services. The Municipality avoids capital expenditures for vehicles, equipment, buildings and land. The Municipality is relieved from the overhead and operation administration costs and from the day to day operating problems, but from not the final responsibility.

The Contractor's inherent advantages are primarily his flexibility in dealing with employees and in quickly adjusting to operating changes. The Contractor can usually deal with employees individually and he can offer wages, benefits and incentives that are not as rigid as the union requirements the Municipality must usually satisfy. As the chain of command is short, decisions can be made quickly regarding capital, equipment or repairs.

A Contractor is handicapped because he must make a return on his investment, pay taxes and his cost of financing is higher. He may also be more vulnerable to labour pressures and he may not have the technical, administrative and financial back-up available to the Municipality. An inflexible contract may not permit the Contractor to adjust to changing conditions or improve efficiency.

The profit incentive is a strong urge to get the maximum efficiency from workmen and equipment but it may also tempt the Contractor to cut corners and lower the quality of service. The Municipality's responsibility is to ensure high quality of service. This may be harder to achieve with indirect control of the workmen and operations.

There are social and political considerations. Some people believe that "government" should give way to private operations wherever practical, while others may feel that public services should be publicly operated. The Municipality's policy may be to limit its staff and administration. An administrative consideration is that contracted service costs are easily identified for user charges and subsidies.

3.2.2 **Billing the Customers.** The Municipality usually wants to retain the direct responsibility for billing the customers. They can do the billing easier and cheaper than a Contractor since they already have the administrative structure. Having the Contractor bill the customers may be appropriate when the authority is more remote from the customers,

e.g. when the Government of the Northwest Territories in Yellowknife contracts trucked services in a community. Non-scheduled services are usually charged to the customer directly by the Contractor.

3.2.3 **Handling Complaints.** The Municipality handles complaints but may want to divest itself of the day to day requests and minor complaints. The Municipality always has the ultimate responsibility and must arbitrate between customers and the Contractor. Irrespective of who handles the complaints, they must be recorded and investigated. The Municipality handles any complaints that the Contractor may have about the public, including any infractions of By-laws related to trucked services.

3.2.4 **Method of Operation.** Two methods of operation; on demand, and by specified frequency are considered in Section 2.6. Each method has applications for different conditions. For example, service on demand is only efficient when either the customers are isolated and dispursed, the requirements for service are erratic or when service is infrequent such as once or twice per month. A scheduled service is more convenient and is more efficient when the customers are close together and service is frequent such as once or twice per week. The method of operation should be specified by the Municipality. Each method could be used for different building types or locations in the community. If the services are contracted, the Municipality may specify the schedule of services for each area or customer or the Municipality may specify the frequency of service and let the Contractor develop a schedule for approval.

3.2.5 **Municipality Provided Materials and Equipment.** The Municipality may provide vehicles, buildings, fuel or other items as part of a contract. This may be done to utilize existing equipment to provide financing assistance to the Contractor because of the specialized nature of equipment required to carry out the operations or because the Contractor would not be able to meet shipping deadlines. Materials and equipment may be prepurchased for the Contractor; leased to the Contractor, leased or purchased from the Contractor at the end of the contract, or simply loaned to the Contractor for the duration of the contract. Equipment supplied by the Municipality is usually maintained by the Contractor, but at times the maintenance of vehicles has also been provided.

It is better for both parties if the Contractor is an independent agent and supplies his own materials and equipment. Contracting should not go halfway. Exceptions may be necessary to attract a Contractor or when available Municipal vehicles are provided for standby use.

3.2.6 **Maintenance of Disposal Site.** The maintenance of the disposal sites for bagged sewage and garbage may be included within the Contractor's responsibilities. The decision depends on local conditions and philosophy. If maintenance is contracted, the duties must be clearly defined. The Municipality is ultimately responsible for meeting health and environmental regulations.

3.3 Contract Considerations

This subsection considers the methods of contracting services and the contract options that you must consider. These options include the scope and duration of the contract, how to deal with changes in the estimated quantity of work and inflation, and how to pay the Contractor.

3.3.1 **Tendering or Negotiating a Contract.** The first contract decision to be made is whether you will tender for bids to provide the services or whether you will negotiate with a Contractor. These alternatives are considered in detail in Section 5.2. The less formal negotiation method is generally faster and is applicable when there is only one interested Contractor. Tendering is often required for the expenditure of public funds.

3.3.2 **Scope of the Contract.** The options are to have separate or combined contracts for trucked water, sewage, bagged/bucket, and garbage services. Since the equipment is different for each service the economic advantages of a larger contract are in the administration, the mechanics and tools to maintain the vehicles, and possibly the more efficient use of workmen. These economy of scale advantages would be much more significant when the value of any service was low.

The disadvantage of a single or combined contract is that it can bind the Municipality to one Contractor. At some size of contract the economy of scale becomes less significant and indeed sometimes larger operations can have higher overhead costs and be less flexible, thus less competitive.

When the number of customers for a service is small, it will probably be better to combine the contracts. In small communities having one Contractor provide all trucked services may be significantly cheaper. There is no particular cutoff value but a separate contract of less than say $100,000 annually would definitely be inefficient. A minimum contract value of $200,000 would be desirable.

When tendering services it is better not to allow bidders to select the services they want to bid on. Having options confuses the tender and complicates the bidding and the evaluation of the bids.

3.3.3 **Specifying the Operations.** The operation options in Section 3.2 must be considered and the methods, requirements and responsibilities specified in the contract.

3.3.4 **Duration of the Contract.** A contract that is too brief may not allow sufficient time for a Contractor to recover his start-up and fixed costs. A short contract does not provide security and can make it difficult for a Contractor to obtain financing.

For contracts of less than one or two years, it is probably better to negotiate rather than to tender. This will allow the negotiation of terms and conditions to satisfy the Contractors financial constraints.

To attract new bidders it will be necessary to offer longer contracts. The average life of a vehicle, i.e., four to five years, is a reasonable contract duration. Longer contracts are not necessary or more efficient and neither the Municipality nor the Contractor may want to be locked into any longer a commitment. Contracts sometimes contain a clause permitting an extension if both parties are agreeable.

From the above considerations it seems that a contract duration of three to five years is appropriate.

3.3.5 **Changes in the Quantity of Work.** The actual quantity of work (e.g. water delivered) is usually different from the estimated quantities. This may be due to fluctuations in demand or to population changes. If the Contractor is paid on a unit price basis then the payment will be proportioned to the work. But what if there is a significant difference between the actual quantity compared to the quantity on which the Contractor based his estimate of the unit price? Because he has fixed costs the Contractor requires some protection.

One method that has been used along with a unit price is to guarantee in the contrct a specified minimum annual quantity of work, for example a volume of water to be delivered or a minimum annual payment. These examples are essentially the same. The problem with guarantees is in setting the amount. It is a fallacy to assume that a particular guaranteed payment will compensate the Contractor for any actual quantity of work. In fact the fair compensation depends on the actual quantity of work. The Municipality should be compensated if quantities are significantly greater than the estimate. Another fallacy is that the Contractor's costs to provide services greater than the guaranteed or minimum quantity are all variable costs.

Table 2.3 shows the expected influence of changes in the quantity of operations on the Contractor's costs and the unit prices. For example, if the quantity is reduced by 20% the Contractor's total costs are reduced by only 12% and the unit price would have to be increased by 10% to compensate for the reduced quantity of work.

It is impractical to ask for bid prices for numerous possible quantities of work but it is necessary to allow for variation in the actual quantity changes. A practical method is to specify in the contract that prices will be renegotiated if the actual quantity or annual payment is significantly different from the estimated values. A reasonable difference would be 15%. Having this item in the contract protects both the Contractor and the Municipality. The price adjustment can be made in a logical manner based on the actual quantity of work performed and actual costs rather than some arbitrary guarantee.

3.3.6 **Price Changes.** No one can accurately predict future price changes in the South, let alone in the North. If asked to submit firm bid prices for future years of a contract, the bidder would have to estimate for the worst conditions. In such cases of uncertainty both the Contractor and the Municipality are worse off. Neither party will want to fix prices for longer than two years, but a contract of three to five years is desirable. There are two ways to deal with this. One way is to automatically adjust the contract prices with price index and the other way is to periodically renegotiate prices.

An index adjustment is attractive because it is easy to understand and to use. The problem with automatic adjustments is in obtaining a meaningful index. In Edmonton, garbage contract prices are adjusted by the "Edmonton Regional Consumer Price Index." In Hay River contract prices are adjusted by the "Consumer Price Index" for Canada. However, neither of these cost of living indices may accurately reflect the Contractor's actual cost increases. In the North the consumer indices may be even less accurate. Another index method used by Hay River is to use certain commodities, like the price of fuel, that are more easily measured in the community. But fuel costs amount to only about 5% of the total contract price. The most important cost factor, the cost of labour, can only be assessed by looking at the Contractors actual cost increases.

The most accurate method of dealing with inflation seems to be to negotiate contract price changes based on Contractor's actual cost increases. Negotiation could be annually or upon notice by either party. The contract must specify that the Municipality may require a financial statement to accompany any request for price increases. When tendering a contract of four to five years duration it may be advisable to make bidders submit fixed prices for only the first two years. In this way the Municipality can judge the Contractor's bid price and the Contractor has the security that legitimate increases in his costs will be covered.

3.3.7 **Paying the Contractor.** The basic principal in establishing a method of paying the Contractor is that the payment should match the actual operations performed. Other factors such as security, allowance for changes in the quantity of work and inflation hve been discussed earlier in this subsection. The methods of paying for contracted services and an analysis of these methods follows.

Methods of Payment. The most common ways used to pay the Contractor are highlighted below:

(1) Quantity Unit Price. Payment is based on the quantity of service. For water and sewage services the volume (litres) is used. For bagged/bucket sewage and garbage services the number of bags collected or containers emptied could be used.
(2) Service Unit Price. This is a charge for each time that service is provided. It is added to the Quantity Unit Price.
(3) Flat Unit Price. This is a fixed charge per service, irrespective of any quantity. The charge may vary for different building types or customers. This is the most common method for bagged/bucket sewage and garbage services.
(4) Mileage Rate. This method is applicable to distant customers and is usually in conjunction with a quantity and/or service charge.
(5) Hourly Rate. This method is useful for special services or work in addition to the contract.
(6) Lump Sum. This is a fixed sum payment for specified services. Usually the frequency or quality of services is specified. This is used for standby fire protection and the like.
(7) Cost Plus. The Contractor submits bills or a statement for all costs incurred, including depreciation and an agreed upon profit.

Analysis of Methods of Payment. Which method is appropriate? The answer depends on the service and your objectives. If you want to match the payment with the work, a unit charge method is required. A cost plus or lump sum contract should only be used in extraordinary circumstances. Because the quantity is often impractical to measure, a flat unit price is favoured for bagged/bucket sewage and garbage services.

For water and sewage services the volumes are relatively easily determined. Building water use varies considerably, as does the cost to service the buildings. The trucked system equations in Appendix C can be examined to determine the factors influencing the time and costs for servicing buildings. By assuming typical conditions, including vehicles and performance, the total hours to provide water delivery is reduced to the following:

THRS = Quantity Factor + Service Factor
= 0.0003 V + 0.08 (F x NB)

Where:
Quantity Factor = Time associated with pumping and travel
Service Factor = Time associated with making a service call, excluding the pumping
THRS = Total annual hours required (hours)
V = Total annual volume of water delivered (litres)
F = Frequency of building service (times per year)
NB = Number of buildings serviced.

There are two factors in this equation. The first factor, the Quantity Factor, depends only on the total annual volume of water delivered. The second factor, the Service Factor, depends on the frequency multiplied by the number of buildings - which is the total number of building servicings per year.

Table 3.1 presents results using this equation for two groups of buildings with different rates of water consumption. One building type has no plumbing and water use is 10 L/person/day (2 imperial gallons/person/day) while the other building group has full plumbing and water use is 90 L/person/day (20 imperial gallons/person/day). All buildings have five occupants. The total annual volume of water delivered to each building group is the same; therefore, there are nine times as many low water use houses. Water is delivered to each house twice per week. For simplicity it is assumed that the average operating cost was $40 per hour.

TABLE 3.1 ANALYSIS OF TIME AND COSTS TO SERVICE TWO TYPES OF BUILDINGS

Type of Building	No Plumbing	Full Plumbing
Number of Buildings	900	100
Water Consumption		
per person	10 L/person/day	90 L/person/day
per building	50 L/building/day	450 L/person.day
Total Water Delivered per year	16,425,000 Litres	16,425,000 Litres
Total Hours/year	12416 hours	5760 hours
Total Cost /year	496,640 $	230,400 $
Average Quantity Unit Cost	3.02 ¢/L	1.40 ¢/L
Cost Breakdown		
Service Unit Cost	3.20 $	3.20 $
Quantity Unit Cost	1.20 ¢/L	1.20 ¢/L

The results show that the Average Quantity Unit Costs to provide twice weekly service to the houses with no plumbing is 2.2 times greater than the cost for the higher water use houses. Therefore a contract to service both types of houses but with only one average quantity unit cost would not be fair or proportional compensation. By using the same equation the costs can be separated into the Service and the Quantity Unit Costs. Table 3.1 indicates that these unit costs are the same for both types of buildings, irrespective of water use.

This example shows that contracts which include buildings with different water use, as is always the case, should be paid by a Service and a Quantity Unit Charge. This is true for water and for pumpout sewage service whether service is provided on demand or by schedule. By using this method of payment, different unit prices need not be set for different building types and customers.

If customers are spread out and the distances to them has a large range, you may want to add a Mileage Charge. As the distance becomes larger, the Quantity Unit Charge becomes less important relative to the Mileage Charge and it may even be dropped.

3.3.8 **Recommended Contract Terms.** The discussion in this subsection leads to the following recommendations for contracts in normal community conditions.

1. The contract should be for four or five years.
2. Tenders should require bid prices for the first two years of the contract with future prices to be negotiated upon notice by either party but with the Contractor being required to provide a financial statement, if requested, to justify a request for a price increase.
3. The method of payment for trucked water and pumpout sewage service should be by a Service and a Quantity Unit Price.
4. The method of payment for bagged/bucket sewage and for garbage service should be by flat unit prices according to building type.
5. A change in the quantity of work by more than 15% of the estimate which was used to establish the unit prices should be cause for negotiation of a price adjustment.

3.4 Establishing Customer Charges

The objective of customer charges is to recover the costs of providing the services.The principles are to establish the customer charges in a manner that is equitable and encourages economic efficiency. Ideally the rate structure should allocate the costs such that each user pays in proportion to the actual cost of providing services to them. There are practical limitations to determining and allocating costs. Other factors enter into the picture and influence the pricing policy. These may include the social, political and administrative objectives of the Municipality and agencies which supply subsidies to the utility systems. For example the G.N.W.T. may provide subsidies in order to promote public health and encourage development. A Municipal objective may be to equalize charges between customers serviced by piped and trucked systems.

3.4.1 **Collecting Revenue.** The two methods of collecting revenue are by taxes and by service charges. Garbage collection is the only service that is commonly paid through general taxes. The reason is the volume is not easily measured and it is assumed that garbage production is proportional to property value (i.e. taxes). The City of Yellowknife found this relationship to be generally valid but it is easy to think of exceptions. There is a trend in municipal government towards user pay charges in order to reduce general taxes and to identify costs for services. For water, pumpout sewage and bagged/bucket sewage service the most common method of collecting revenue is by service charges which follow a rate structure.

3.4.2 **Rate Structure.** The rate structure should:

(1) be simple, understandable and acceptable to the public
(2) be feasible and easily administered
(3) be relatively stable
(4) provide adequate revenue
(5) encourage conservation and efficiency.

There are numerous methods of charging a user fee for services. The rate structures that have been used for water and sewage service are detailed in Appendix D. These include: flat rate (fixed price); declining block rate (decreasing price per litre); increasing block rate (increasing price per litre); constant rate (constant price per litre); demand and peak load rates; and seasonal rates. These are the usual rates for piped systems. For trucked systems the additional rate structure is a service unit rate plus a quantity unit rate.

Any of the rate structures can return adequate revenue and all except the flat rate can encourage economic efficiency. To recover adequate revenue, you adjust the price. To facilitate economic efficiency you should select a rate structure that reflects the actual cost of providing services. For example, if the average unit cost to provide water decreases with higher demand, then you should select a declining rate. For trucked services the customer charges should reflect the method used to pay the Contractor. The method recommended previously for trucked operations was a service and a quantity unit rate. Additional trucked costs would include water supply, waste disposal and the administration costs for billing.

3.4.3 **Customer Charges.** The customer charges for trucked services are usually lower than the actual total cost to provide service. The main reason is the subsidy and grant programs of the G.N.W.T. for utility systems. This reduces the types and proportion of the total utility system costs that the Municipality must pay for and thus recover from the customers.

Another factor that has distorted the customer charges in some Municipalities is the policy to equalize the water and sewage charges to pipe and truck serviced customers. Perhaps the main reason for this is to eliminate apparent discrimination. It is up to each Municipality to decide if they want to equalize the utility charges. This usually means the average price level is increased slightly to cover the higher operating costs for trucked services. For example, the proposed rate for private home owners in Frobisher Bay was determined from the following:

Truck Customer Rate = Economic Rate - G.N.W.T. Subsidy - Equalization
= 59.01 - 35.41 - 2.94
= 20.66 $/1000 I gal.

Piped Customer Rate = Economic Rate + Equalization
= 10.22 + 0.11
= 10.33 $/1000 I gal.

This example also points out that because the objective was to equalize the total customer charge, the trucked rate was set at two times the pipe rate since water use for a truck serviced building is typically half that for the same pipe serviced building. An alternative rate structure for trucked customers that would achieve the same goal would be a Service Unit Charge of $2.27 and a Quantity Unit Charge of 10.33 $/1000 I gal., assuming twice weekly service for water delivery and sewage pumpout.

3.4.4 **Economic Efficiency and Water Conservation.** The demand for water, as with most commodities, is influenced by the price. Under normal economic conditions users would select fixtures and adjust habits to optimize their water use. A subsidy program distorts this movement towards economic efficiency since the user is only influenced by his charges, but not by the real cost. In the previous example from Frobisher Bay the trucked customer pays only 20.66 $/1000 I gal. compared to the real cost of 59.01 $/1000 I gal. The subsidizing agents have more to gain from efficient water use than the customer. Another factor is that in N.W.T. communities there are few users who pay their own utility bills without a partial or full subsidy from their employer.

Because of these problems in achieving economic efficiency, a different approach to water conservation may be warranted. One method would be to promote public information on water conservation. A more active method would be for the Municipality and/or the G.N.W.T. to subsidize the purchase and installation of water conservation devices or to require the installation of low water use plumbing fixtures. These approaches are discussed in more detail by Cameron and Armstrong, 1979.

3.4.5 **Customer Payments.** Customers are usually invoiced for service charges on a monthly basis. The administration and the accounting of the collection system are discussed in Section 4.

Water Card. An additional method of paying for trucked water and sewage service is to require trucked customers to prepurchase and display a water card. The water card system communicates to the Contractor, in an efficient and current manner, the customers who are authorized to receive service. A customer must pay all outstanding service charges before a new card can be purchased. A water card system can provide greater control over the customers compared to the invoice only system used for piped system customers. This would only be true if the card was purchased monthly, not annually as is possible in some communities. If the water card system is not used, the Municipality must provide an updated eligible customer listing which the Contractor consults before providing service. This is inconvenient for both parties. Another advantage of monthly water cards is that temporarily unoccupied buildings without a card need not be servied.

The purchase price for the monthly card often includes a certain quantity of service. In Yellowknife it covers the normal price for the first 1000 I gal (4500 L). Since the typical water use for a house with no plumbing is only about 350 I gal (1600 L) per month, the effective unit rate for these customers is three times the rate for houses with full plumbing. This higher unit rate may be justified due to the relative higher unit cost to service low water use buildings but a more equitable method would be to charge all trucked customers in proportion to actual costs. This can be done by way of a service charge and a quantity charge.

On the whole, the use of a water card system seems an unwarranted extra administrative expense.

4. ADMINISTRATION OF TRUCK SERVICES

In this Section the work and procedures involved in the administration and management of municipal trucked services are outlined. Included are important items as: keeping track of the customers; billing the customers; dealing with customer complaints; and the overall management of the services. Simple procedures and standard forms are suggested that will minimize the time and attention required by both municipal clerks and managers.

Much of this Section is adapted from the administration system currently used by the City of Yellowknife. The system is based on the trucked services being carried out by Contractors with the Municipality handling all the administration, including billing the customers. Where the Municipality also operates the service, there will be additional but separate administration and management requirements. These are not addressed directly in these Guidelines but many of the procedures will be the same. To apply these procedures merely replace the references to "Contractor" with "Public Works".

Trucked services will be only one of the Municipality's administration requirements. The methods and procedures suggested here may have to be adapted to fit into the larger system.

4.1 Administration

The following are suggested administration procedures to provide a simple and efficient method to maintain a current registration of customers and to maintain customer accounts. Examples of standard forms that will facilitate this work have been provided. Blank copies of these forms are provided in Appendix E. Check lists to assist the municipal staff in the administration are suggested. These forms and check lists are meant as examples and may have to be adapted to meet your own requirements.

The administration procedures that are outlined are generally applicable to services that are paid for by a customer service charge and not by general municipal taxes.

4.1.1 Registration of Customers It is necessary to register all customers in order to ensure that they receive services and are charged for them. New customers should complete an "Application for Trucked Municipal Services". This form should include the information necessary to process the application and initiate service and as any information that may be required for the approval of trucked services. The conditions of approval may include the location of the building and health, Federal and Territorial requirements and Municipal By-laws. A new building that has not previously received service may have to be

FIGURE 4.1 EXAMPLE OF "APPLICATION FOR TRUCKED MUNICIPAL SERVICES"

CITY OF TUF LUK BAY

APPLICATION FOR TRUCKED MUNICIPAL SERVICES

IDENTIFICATION

Name *Customer H.A.P.* (Surname)

Mailing Address *Box 12*

Tuf Luk Bay, N.W.T.

Telephone *7192*

BUILDING LOCATION

Legal LTO # *5* Block # *179* Lot# *8*

Street *12 Mackenzie Street*

Tuf Luk Bay, N.W.T.

SERVICES DESIRED

DATE SERVICES ARE DESIRED

- [X] Water Delivery — *August 15, 1981*
- [X] Sewage pump-out — *August 15, 1981*
- [ ] Honeybag/Bucket sewage
- [X] Garbage — *August 15, 1981*

TYPE OF BUILDING

- [X] Residential
- [ ] Commercial
- [ ] Other (specify) _____

or

- [X] New service for building
- [ ] Continuation of service

BUILDING DATA

Water tank capacity *500*
Sewage tank capacity *750*

or

- [ ] Cubic Meters
- [ ] Imperial Gallons

July 20, 1981
Date

Harry Customer
Signature of Applicant

FOR OFFICIAL USE

- [ ] Applicant is within approved service area
- [ ] Building conforms to Municipal By-Laws
- [ ] Building conforms to Health standards.

APPLICATION APPROVED BY:

August 1, 1981 *Joe Cramer*
Date Municipal Inspector

August 2, 1981 *S.P. Quinn*
Date Municipal Administrator

FURTHER INFORMATION:

checked by the Municipal Inspector. An example of a completed Application is presented in Figure 4.1 and a blank copy is provided in Appendix E.

If the application is not approved the applicant should be informed of the deficiency in the application. New customers should be informed about service requirements and the days they will receive scheduled services. This information can be assembled into a "Customer Information Package" and might contain:

a) Current service rates
b) Billing practices including explanation of the Service Card System if is is used
c) Unscheduled service policy
d) Termination of service policies
e) Municipal By-laws pertaining to trucked services
f) Consumer information such as water conservation.

4.1.2 **Customer Listing** Once the Application has been approved, the basic customer information is transferred to a separate "Customer Listing".This provides the Municipality and the service Contractors with an up-to-date list of customers that are in good standing and eligible to receive service.

Figure 4.2 is an example of a "Consumer Listing for Trucked Services" in which all types of service are recorded on one form. You may wish to keep separate listings for water, sewage, honeybag and garbage service.

The service Contractors must be notified of any additions or changes to this listing.

4.1.3 **Service Schedule** A service schedule is a timetable of days that each building is to receive service. The schedule is necessary to inform customers regarding service times and to insure that the Contractor provides the service when required. It is also used for vehicle routing and as a customer check list for the Contractors employees.

The Municipal Service Contract specifies the Municipality or the Contractor as responsible for establishing the initial service schedule. In either case the service schedule and any changes require approval by the Municipality. The customers affected should be notified well in advance and public comment should be solicited for any significant changes.

The Municipality notifies the Contractor of any new customers or other changes to the service schedule. An example "Customer Service Schedule" is provided in Figure 4.3.

FIGURE 4.2 EXAMPLE OF "CUSTOMER LISTING FOR TRUCKED SERVICES"

CUSTOMER LISTING FOR TRUCKED SERVICES Page ____

CUSTOMER NAME	STREET ADDRESS	LEGAL ADDRESS LTO, BLOCK, LOT			PHONE	SERVICES			
						WD	SP	SB	G

WD=Water Delivery; SP=Sewage Pumpout; SB=Sewage Bagged/Bucket; G=Garbage

FIGURE 4.3 EXAMPLE OF "CUSTOMER SERVICE SCHEDULE"

SERVICE SCHEDULE

SERVICE TYPE *Water Delivery* EFFECTIVE DATE *September 1, 1981*

SCHEDULE DAY(S) *Monday* SCHEDULE NO. *4*

STREET	BUILDING NO.	LEGAL LTO, BLOCK, LOT	NAME OF CUSTOMER
Mackenzie	*2*	*5, 179, 2*	*Brooks, D.*
	4	*5, 179, 4*	*Pine, A.*
	6	*5, 179, 6*	*McTaggart, L.*
	8	*5, 179, 8*	*Tagoonik, J.*
	10	*5, 179,10*	*Hill, E*
	12	*5, 179,12*	*Customer, H.A.P.*
	14	*5, 179,14*	*Pirth, J.*

4.1.4 **Customer Accounts, Invoicing and Receipt of Payment** The Municipality invoices the customers for the trucked services that are to be paid for by service charges. These charges are usually related to the quantity or frequency of service, such as the volume of water delivered or the number of garbage pick-ups. These values are provided by the Contractor with his monthly invoice to the Municipality. The rates for service charges are usually specified by By-law.

The accounting for trucked services will be only one of the accounting requirements of the Municipality. Closely associated with trucked services will be piped water and sewage services. All these services require a common accounting and billing system, therefore, the trucked accounting system must be coordinated with the Municipalities accountants. The manual accounting system and example forms outlined in these Guidelines are based primarily on trucked services. Some adjustments will be necessary.

The accounting system must keep track of invoices sent to customers, payments that are received and any outstanding balance that is carried over to the next months utility bill. A simple method is to record all transactions on a "Customer Account Card", an example of which is in Figure 4.4. A separate Card is made up for each newly approved customer. The Card includes spaces for the name and mailing address of the customer, the lot being serviced, an account number assigned to the customer and the information on all transactions. When a payment is received or an invoice sent out these are promptly recorded (posted) on the Card. The example indicates some typical transactions.

The information included on the "Invoice" or "Utility Bill" that is sent to the customers will depend on the accounting system, the late payment policy and the service charges. In all cases the bill should include the following:

a) identify the customer and account number;
b) indicate the previous balance, total payments received and balance due;
c) specify the quantity of each service (e.g. cubic meters of water delivered
all new charges;
d) clearly indicate the amount now due.

Other information might include a legend for service charge code, instructions on how to pay the bill and the penalty for late payment. It is often convenient to print this latter information on the back of the utility bill.

An example of a "Municipal Service Bill" is provided in Figure 4.5. In this example the bill is made out in duplicate, or triplicate if a copy is reuired for the Municipal accounting system. Two copies of the bill are mailed to the customer who keeps one copy for his own record and

FIGURE 4.4 EXAMPLE OF "CUSTOMER ACCOUNT CARD"

CUSTOMER ACCOUNT CARD

10076
ACCOUNT NO.

NAME *Customer, H.A.P.* ACCOUNT NO. *10076*

MAILING ADDRESS *Box 12*
Tuf Luk Bay, N.W.T.

LEGAL: LTO *5* BLOCK *179* LOT *8*

STREET *12 MacKenzie*

TEL. NO. *7192*

	DATE	CHARGES		CHARGES	PAYMENT RECEIVED	BALANCE
		INVOICE NO.	CODE			
1	*6/8/81*	*52826*	*UB*	*34.28*		*34.28*
2	*5/9/81*	*53018*	*P*	*.51*		*34.79*
3	*5/9/81*	*53018*	*UB*	*30.62*		*65.51*
4	*17/9/81*				*65.51*	*0.00*
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

NOTES: UB=Utility Bill; P=Penalty

FIGURE 4.5 EXAMPLE OF "MUNICIPAL UTILITY BILL"

UTILITY BILL	*CITY OF TUF LUK BAY* *Northwest Territories*			INVOICE NO.
ACCOUNT NO. *10076*	SERVICE ADDRESS *12 MacKenzie Street*			
BILLING DATE *Sept. 5, 1981*	PREVIOUS BILL *34.28*	AMOUNT PAID *0.0*	PENALTY *0.51*	BALANCE FORWARD *34.79*

SERVICE CODE		CODE	QUANTITY	UNITS	NEW CHARGES
WM - WATER METER	AJ - ADJUSTMENTS	*WD*	*4*	*Q*	*2.00*
WD - WATER DELIVERED	MD - MISC. CHG.	*WD*	*8180*	*L*	*8.18*
S - SEWAGE	MC - MISC. CR.	*SP*	*4*	*Q*	*2.00*
SP - SEWAGE PUMPOUT	E - ESTIMATE	*SP*	*8180*	*L*	*6.54*
SB - SEWAGE BAGGED	A - ACTUAL	*G*	*Oct.*	*Q*	*12.00*
G - CARBAGE	S - SERVICE CHG.				
L - LITRES	Q - SERVICES		SUB-TOTAL		*30.62*

+ *H.A.P. Customer* *Box 12* *Tuf Luk Bay, N.W.T.* *X1P 5W2* +	AMOUNT NOW DUE *65.51*

PLEASE RETURN YELLOW COPY WITH PAYMENT

INTEREST CHARGE INFORMATION

THERE IS NO INTEREST CHARGE WHEN PAYMENT IS RECEIVED IN OUR ACCOUNTING OFFICE WITHIN THIRTY (30) DAYS OF THE "BILLING DATE" SHOWN.

AN INTEREST CHARGE OF 1.5% PER MONTH (being 19.56% per annum compounded monthly) IS APPLIED TO ALL "BALANCE FORWARD" AMOUNTS.

PAYMENT

ACCOUNTS MAY BE PAID IN PERSON OR BY MAIL TO: *City of Tuf Luk Bay*
Box 76
Tuf Luk Bay, N.W.T. X1P 1W6

MAKE CHEQUES AND MONEY ORDERS PAYABLE TO: *City of Tuf Luk*

PLEASE RETURN YELLOW COPY WITH PAYMENT

returns the other copy with the payment. A return envelope included with the bill is an unwarranted expense in a small community since most people pay their bills at the Municipal office.

Since the Municipality will issue many of these bills, a preprinted business form with carbon paper between the copies (One Time Carbon forms) should be used. The form should fit in an envelope without requiring folding. Window envelopes are commonly used so the address typed on the utility bill shows through for the mailing address. Many printing companies specialize in typesetting and printing these business forms from an outline. Typical costs for a three part form are $225 per 1000 but costs are about half that for orders over 10,000.

There are many other invoice formats that can be used for utility bills. One type is a form with a tear-off portion that is returned with the payment. The City of Yellowknife uses a "self-mailer" type that includes the bill and envelope in one pre-assembled form. These and other formats have advantages but many of them are only possible with a computer accounting and printing system. Computer data processing is considered in Section 4.1.9.

The customers copy of the utility bill is his receipt. If he pays by cheque, the cancelled cheque is also a receipt. If payment is made at the Municipal office the customer copy of the bill is marked as PAID with the Municipalities stamp and dated. A written receipt can be issued if requested or when the customer does not hve the utility bill. Figure 4.6 is an example of a "Municipal Services Receipt".

4.1.5 **Late Payment** Utility bills not paid within a specified time period, usually 30 days, are usually charged a penalty. This late payment penalty is based on recovering the interest charges on the monies but its most important function is to encourage the customers to pay the bills promptly. An alternate method presently used by the City of Yellowknife is to provide a discount in the utility bill if payment is made within 30 days. This discount method has been shown to be less effective than a penalty at getting customers to pay promptly. The discount method does not recover the lost interest costs from the offenders. Instead everyone's utility rates are increased to recover the interest and the discount. For these reasons a penalty system for late payment is recommended.

There are various methods to charge a penalty for late payments and to indicate these changes on the customer's utility bill. The method that is suggested here is meant to minimize the calculations and typing required for manually prepared bills. The example utility bill in Figure 4.5 is made up using the following system. The late payment policy is printed on each utility bill. It indicates that any amount not paid within 30 days after the "Billing Date" is charged interest at a specified rate, 1.5% per month.

FIGURE 4.6 EXAMPLE OF "MUNICIPAL SERVICES RECEIPT"

OFFICIAL RECEIPT

NO. *70924*

RECEIVED FROM *H.A.P. Customer*

ACCOUNT NO. *10076* SERVICE LOCATION *12 MacKenzie Street*

DATE	DESCRIPTION/ SERVICE CODE	AMOUNT PAID
October 1, 1981	*Utility Bill*	*65.51*

PAID BY: [X] CASH [ ] CHEQUE [ ] _____

Mary Smith
AUTHORIZED SIGNATURE

The information on the utility bill is obtained from the "Customer Account Card". All payments that have been received are subtracted from the "Previous Balance". Any difference is the unpaid amount. The late penalty is calculated as 1.5% of any unpaid amount. The total amount now owing is the "Balance Forward" which is the sum of the unpaid amount and the penalty. For convenience the penalty charge is often not charged when the unpaid amount is less than say $10. With this method the "Billing Date" must be included on every bill.

A common method not recommended is to indicate the actual late payment date and the amount due if the bill is not paid before this specified date. Although this method is clearer, it requires more calculations and is used with computer billing. Another method is to charge a fixed amount, say $5, for late payments. This requires keeping track of each bill and makes partial payments difficult to handle.

4.1.6 **Cancellation of Service** The conditions under which the Municipality may discontinue service are usually specified in By-laws. The reasons may include the following:

a) Failure to register
b) Failure to purchase a Service Card, if this system is used
c) Non-payment of utility bills
d) Contravention of any By-laws related to municipal services, including failure to provide access.

The service can also be cancelled by the customer.

Customers should be given a reasonable length of time to pay the utility bills and are given a notice of termination as a warning before service is cancelled. The notice is included with the utility bill if no payments were received since the last billing. An example of a termination notice is shown in Figure 4.7. It indicates the date usually the next billing date by which payment must be received. If payment is still not made by that date, service is cancelled. This service cancellation procedure would have allowed two billing periods, usually two months, for the customer to pay the utility bill.

FIGURE 4.7 EXAMPLE OF "TERMINATION OF SERVICE NOTICE"

TERMINATION OF SERVICE NOTICE

AS OF THE "BILLING DATE" WE HAVE NOT RECEIVED PAYMENT ON YOUR UTILITY BILL. FULL PAYMENT MUST BE RECEIVED AT OUR ACCOUNTS OFFICE, CITY HALL, BY *October 1, 1981* OR SERVICE WILL BE TERMINATED ON *October 5, 1981*

IF YOU HAVE MADE PAYMENT, PLEASE DISREGARD THIS NOTICE.

If a Service Card system is used, the failure to purchase and display a monthly card by the 15th of the month will be grounds for termination of service. This system provides for swifter control over the delinquent customers.

It should be pointed out that the penalty charge for late payment and the notice of termination are usually effective incentives to encourage prompty payment. The cancellation of service is at the discretion of the Municipality and all cancellations are usually reviewed with consideration of past payment record and circumstances.

For whatever reason, the cancellation of service is the responsibility of the Municipality and all cancellations must be authorized by a representative ofthe Municipality. The Contractor must be notified to terminate service and the customer is removed from the "Customer Listing". There is usually a service charge specified in the By-law to reinstate a service that has been cancelled.

4.1.7 **Collection of Overdue Accounts** Customers who do not pay their utility bills are in breach of contract and may be subject to the following:

Cancellation of service

a) Cancellation of service
b) Debt recovery by court action or distress (seizure) or sale of goods and chattels (possessions) of the customer in arrears
c) Transfer of debts to property taxes and subsequent recovery as a default in payment of taxes by seizure of property.

The transfer of utility debts to property taxes is only valid when the customer is the property owner, not a renter. If the Municipality notices that certain rental properties are often in arrears they may insist that the utility account be opened in the owners name.
The Municipality should pursue the unpaid accounts, not only to obtain the money but also to discourage the non-payment of accounts. There will be some "bad debts" that never recovered but this should be a small amount. In Edmonton it is about 1% of the total utility revenue.

4.1.8 **Procedures and Check Lists** Each Municipality should prepare an outline of the administration procedures for their truck services. This outline would be useful to both managers and clerks, and especially new or temporary employees. Since it would be specific to your situation, it would be in more detail than the procedures outlined in this Guideline.

Check lists and procedures are useful to define certain routines such as the registration of new customers or the processing of monthly utility bills. Examples of these are presented in Table 4.1 and 4.2.

TABLE 4.1 **EXAMPLE CHECK LIST FOR REGISTRATION OF NEW CUSTOMERS**

REGISTRATION OF NEW CUSTOMERS

1. When service is requested:
   - explain that they must fill out an "Application for Trucked Municipal Services" and that new buildings must be inspected
   - check the Application to ensure it is filled out completely and correctly
   - give them a "Customer Information Package" and explain items such as the Service Card system, scheduled services and current prices.

2. If this is a new service notify the Municipal Inspector. He must approve the Application.

3. Send the Application to the Municipal Administrator for approval.

4. If the Application is not approved notify the applicant of the reasons for rejection.

5. Once the Application is approved:

   - file the Application
   - add the new customer to the "Customer Listing" and "Customer Service Schedule"
   - obtain a "Customer Account Number" from Accounting
   - make up a "Customer Account Card"
   - Notify the Contractor of the new customer.

TABLE 4.2 **EXAMPLE CHECK LIST FOR "MONTHLY BILLING" PROCEDURES**

MONTHLY BILLING PROCEDURES

1. Date and record all payments that are received on the "Customer Account Cards".

2. Obtain quantity and service records from the Contractor's monthly invoice.

3. Calculate and add the new charges for each service onto the "Customer Account Card".

4. Make out the "Utility Bill" for each customer.

   - Calculate the values for the utility bill:

Previous Bill (from Card)	= _____	(1)
Payments (from Card)	= _____	(2)
Unpaid amount = (1) - (2)	= _____	(3)
Penalty = (3) x 0.0.15	= _____	(4)
Balance Forward = (3) + (4)	= _____	(5)
New charges = Quantity x Service Rate	= _____	(6)
Amount Now Due = (5) + (6)	= _____	(7)

   - Fill in the information on the Utility Bill.
   - Include a "Notice of Termination" if the last bill was not paid.
   - Notify the Municipal Administrator if this is the second unpaid bill.

5. Mail out the utility bills.

4.1.9 **Computer Data Processing** Computer systems are excellent for doing large volumes of simple, step by step, repetitive tasks. Besides doing this work very fast and possibly cheaper, properly designed computer systems can provide management information and reports. Some Municipalities find it advantageous to convert their manual customer accounting, billing, payroll and other tasks to an electronic data processing (EDP) system. This conversion is a significant undertaking involving far more than just the mere acquisition of the necessary hardware (the computer including the printer and terminal) and software (the program or instructions to allow you to communicate with and use the computer).

Before making any committment you should conduct a thorough study of your present system, your present and future needs, and the implications of converting to a computer system. A Systems Analyst consultant, not a computer salesman, who specializes in this area should be selected to provide benefit-cost analysis of all the alternatives and to advise you on how to proceed. The alternatives should include the following:

1) Improvements to the existing manual system. This alternative should not be overlooked.
2) Acquire a computer. This gives you complete control over the hardware and software but also gives you all the headaches such as maintenance and staffing.
3) Use a service bureau. You provide the data (information) and a specialist company uses their program and computer to provide you with the results. The City of Yellowknife uses such a system to process and print utility bills.
4) Use someone elses computer. This may include the use of their programs or you may just rent computer time.

Besides obtaining expert advise, you should contact other Municipalities that use computer systems and observe the systems in operation. There are a few publications that can provide you with much more detailed information and advice. An appendix to the American Water Work Association publication "Water Utility Accounting" provides information on converting to computer systems and includes a list of common pitfalls. Two straight forward publications for Municipalities are put out by the Ontario Ministry of Intergovernment Affairs. There is a detailed report titled, "Using Computers - A Guide for Municipalities in Ontario" and a short bulletin titled, "Minicomputers".

4.2 CONTRACT ADMINISTRATION

Contract Administration is a broad term that covers all the aspects of acquiring goods and services by obtaining and managing contracts. The objective is to obtain maximum quality and competition and to maintain a spirit of co-operation and joint endeavor. The Contract Administrator is responsible for:

1) the preparation and implementation of contracts.
2) representing the Municipality in the interpretation of the contract and settling of disputes.
3) approval of any changes to the contract.
4) the certification of quantities and the approval of payments to the Contractor.

The work of the Contract Administrator is greatly facilitated if procedures and clear lines of authority are established and if a spirit of co-operation and joint venture with the Contractor can be maintained. The Contract Administrator should be familiar with contract law and administration.

4.3 Monitoring of Service

It is the Municipality's responsibility to ensure that a high standard of service is provided to the customers. Inevitably there will be customer complaints to deal with and the Contractor must be monitored to ensure that he fulfills the terms and standards of the Contract. This subsection deals with these topics.

4.3.1 Customer Complaints It is the Municipality's responsibility to investigate and resolve all customer complaints. The Contractor is required to record customer complaints that are made to him and to inform the Municipality of these complaints.

Customer complaints are generally related to billing and service operation.Billing complaints are handled by the municipal employee responsible for accounting. If the dispute relates to the billing policy then it should be handled by a Municipal Administrator. Service operation disputes and complaints should be investigated by an official of the Municipality. Complaints should be investigated as quickly as possible and appropriate action taken towards resolution of the complaint. Many of the customer complaints will involve the Contractor. This places the Municipality in the middle. In some cases it may be necessary to ask the Contractor to modify the operations specified in the Municipal Services Contract in order to resolve the complaint. A good community-contractor-inspector relationship is necessary to maintain a high quality service that will result in few customer complaints and to resolve any complaints that arise.

4.3.2 Route and Schedule Changes The route and customer service schedule for trucked services are specified or approved by the Municipality. The customers must be notified of any proposed changes to the established service. If only a few customers are involved they can be contacted individually. Major changes should be given adequate public attention by notices included in utility bills, newspaper notices, public meetings or municipal council meetings open for the public to comment.

4.3.3 **Monitoring of the Contractor** A Municipal Inspector is usually designated by the Municipality as the person responsible for monitoring the Contractor, to ensure the terms of the contract agreement are fulfilled and the services performed meet the needs of the customers and the community. Continuous monitoring discourages infractions and reduces the causes of consumer complaints. It allows the Inspector to become familiar with the trucked operations and to note any potential improvements in service and efficiency. If appropriate, the Inspector can recommend amendments to the contract.

All infractions of the contract should be recorded. Serious or continuous infractions of the contract should be transmitted in writing to the Contractor and discussed with the Municipal Administrator. If these can not be resolved the Municipality may cancel the contract.

A list of contract conditions and operations that often give rise to complaints follows:

Customer Service:

- Control of vehicle noise and hours of operation.
- Service delays or omissions.
- Damage to customer property by contractor(s).
- Spilling water, sewage and garbage.
- Overflowing water when filling building tanks.

Sanitation:

- Maintainenance of pickup and/or disposal sites such that health and safety hazards are minimized.
- Periodic cleaning of all service equipment.
- Conduct operations to avoid contamination. This includes avoiding spillage of bagged/bucket contents, sewage and garbage.
- Employees of the contractor are required to keep a clean manner (i.e. clean overalls and hands, gloves, etc.), especially for water delivery.
- The water delivery process is to be done with the utmost hygienic care. Water delivery apparatus (hose, nozzle, etc.) should be kept clean and not allowed to drag on the ground.
- Proper water disinfection (chlorination) and testing should be maintained where required.

General Conditions:

- Maintain records, receipts, and accounts as required.
- Properly maintain and use municipal equipment and facilities.
- Adhere to labour conditions as required by law.

4.4 Payment of the Contractor

The Municipal Service Contract usually specifies that the Contractor must obtain, prepare and maintain books, receipts and records for invoicing purposes. These must be maintained to the satisfaction of the Municipality. This information is necessary to pay the Contractor for the work done and to charge the customers for the services received.

The Contractor is usually required to submit a monthly invoice to the Municipality. The content of the invoice will depend on the method of payment specified in the contract. The invoice should indicate the period for which it applies, the quantity of work or service performed, the current unit or other prices, the total invoice and must be signed by an authorized agent of the Contractor. A standard invoice form would be helpful. With certain contracts the Contractor may be entitled to a payment at the end of the year. The Contractor would submit an invoice which would provide the substantiation for the payment.

The Contractor's invoice must be approved by the Inspector. Following approval, the Contractor's invoice is paid by the Municipality according to the normal procedures established for payment of an invoice.

The Contractor is usually required to submit a complete record of the services provided to each customer. The format for these records will depend on the service and the information the Municipality needs in order to change the customers. The Contractor should submit this information in a format that simplifies the transfer of the information to the "Customer Account Card". A standard form for this information would make this easier and faster.

5. PREPARATION OF TRUCK SERVICE CONTRACTS

5.1 General

In this Section we consider the methods useed to contract out municipal trucked services. The details and applications of the two major methods, tendering and negotiating a contract are discussed. A step by step procedure to prepare and implement either contract is presented. Examples of both contracts are included in Appendix F and G.

A contract is a legally binding agreement between the parties. But a contract that is incomplete, misleading or unclear can lead to many problems including the following:

(a) disputes in the interpretation of the contract;
(b) inadequate control over the operations;
(c) poor and inefficient service to the community;
(d) possible liability of the Municipality for the Contractor's actions;
(e) needlessly high costs.

For these reasons it is very important to carefully prepare the contract. The terms of the contract should be clear, concise and comprehensive. Certain legal expressions or working are used in contracts because these terms have a precise meaning that is understood by the courts and lawyers. They are not commonly used or understood terms but not using these terms can open up the contract to intrepretation. Parts of the Contract that describe the operations or performance need not and should not be schrouded in "legalise".

Many of the terms in contracts are a desperate attempt to cover all possible conditions and to provide for every reasonable contingency. As they are usually slanted heavily in favour of the Municipality, the Contractors may be offended by some of the wording or terms. It is better to clearly outline the responsibilities of each party before the Contract is signed than to enter into time consuming and difficult negotiations after the operations have started. In practice the legal and descriptive terms of the Contract are useful as leverage and as means of settling disputes. It is seldom worth the effort of going to court to force a Contractor to do something or to recover damages.

The notes in this Section and the example contracts should simplify the preparation of contracts and hopefully will improve their content and completeness. It should be noted that these example contracts are presented for your information only. You must thoroughly consider and adapt or amend the examples to fit your situation and requirements. The author and the Government of the Northwest Territories cannot assume any responsibility for errors or omissions in the examples.

The trucked service options presented in Section 3 must be considered prior to preparing a contract. These options would include items such as the scope of work, the method of payment, and the responsibilities of the Contractor. The first contract decision you must make is the type of contract that you want to enter into.

5.2 Types of Contracts

There are two methods of contracting out municipal trucked services: by tender and by negotiation. The operations, responsibilities, method of payment and the contract agreement are basically the same for both methods. The major difference is in how to obtain a Contractor to do the work and how to arrive at the price for the work. The pros and cons and the applications of these types of contracts are discussed below so you can determine which to use.

5.2.1 **Tendered Contract.** A tender is simply an offer or bid. Tendering is the term used for the formal process when the Municipality requests interested potential Contractors to submit a sealed tender (i.e. bid) to carry out the operations specified in the Tender Documents. The Municipality prepares the Tender Documents and all tenderers (bidders) tender for the same work, with the same conditions and method of payment. The bidder's submit unit prices or lump sum bids as required and include any information requested. They cannot change any of the terms in the Tender Documents. All bidders must certify that their tender is made without connection, knowledge, comparison of figures or arrangements with other bidders submitting a tender for the same work. The sealed tenders are all opened at a designated time and place. The Municipality is not bound to accept the lowest tender, although this is the usual intent.

The tendering process is meant to obtain truly competitive offers from a number of parties. The Contractors may prefer to tender for work since they cannot be "played-off" or made to openly bid against each other to lower their prices. Municipal officials may prefer to tender rather than to have the responsibility of bargaining with the Contractors. Formal "above the board" tendering is usually mandatory for the expenditures of public funds.

The main disadvantage of tendering a contract is the work involved in making up the Tender Documents and following the process through. In some cases the length of time required for tendering may be important. By using the information, procedures and examples in this Guideline, the work and time required should be reduced considerably.

5.2.2 **Negotiated Contract.** A contract for trucked services can also be negotiated. This method should be used only when there is one Contractor that is interested or qualified to do the work. The Munici-

pality often prepares the contract in consultation with the interested Contractor. If the terms and conditions and the method and amount of payment can be agreed upon, a Contract is drawn up and signed.

Compared to tendering, a negotiated Contract requires less time and effort and the Contract can be awarded quicker. There is more flexibility. The terms and method of payment can be negotiated to obtain a more efficient and compatible Contract, hopefully at the lowest cost. Contracts that are for a short period, (e.g. only one year) or for a low amount (e.g. less than $25,000) are usually negotiated. Extensions to existing contracts are also usually negotiated. It has been common practice to require the Contractor to submit a financial statement as a basis for negotiating prices for an extension or for price changes to a Contract.

In some cases there may only be one Contractor who is interested in doing the work. Unless required by law, there is no point in tendering. However, to be certain and to be covered, you may want or have to publicly advertise your intention to negotiate a Contract in order to determine if there are any objections. If there are no objections, you can confidently enter into negotiations.

Negotiating a Contract can open the Municipality to complaints and criticism. This is because compared to tendering it gives more authority and responsibility to the Municipal Council and Administration. The situation will dictate whether the public and the Municipal Council and Administration are agreeable to this.

5.3 Tendered Contracts

As mentioned earlier, a tender is a formal offer to provide the services outlined in the Contract. Tenders can be solicited by:

(1) public advertisement, or
(2) direct invitation to selected Contractors, or
(3) a pre-qualification process.

The first method is the most common and is used as the basis in these Guidelines.

In this subsection the procedures for tendering are set forth; the organization and parts of the Tender Documents are briefly described; and the method of preparing the tender documents is outlined.

5.3.1 Steps in Tendering Contracts. Before starting to tender a contract you should consider the trucked service options outlined in Section 3. The decisions you must make include: the scope of the work; the duration of the contract; the method of payment; and materials or equipment that the Municipality will supply. You will have to estimate

the quantity of work for operations that are to be paid by a unit price. Having made the decision to tender the contract the following steps can be followed:

(1) Preparation of the Tender Documents

The preparation of the Tender Documents is described in Section 5.3.3. Basically, you use the example Tender Documents in Appendix F as the basis for preparing a "set" of Tender Documents that are specific to the requirements for your municipal services.

You should print enough sets for the anticipated number of bidders plus a few for yourself. The complete Tender Documents should be ready at least one week before you "call tenders".

(2) Calling Tenders

Public tenders are "called" by advertising an "Invitation to Tender". It is usually run for at least one week in local and regional newspapers and it is posted at locations, such as the municipal office and post office. Local Contractors could be notified directly. The advertisement should be ready one week before you intend to publish it.

The date that tenders are due is indicated in the Invitation to Tender. Preferred days and time for the closing of Tenders are Tuesday, Wednesday or Thursday at 3:00 p.m. local time, but not on legal holidays. You may want to coordinate the time with a planned council meeting. Sufficient time should be allowed for bidders to study the Tender Documents and prepare their bids. Four weeks (30 days) is usually considered a reasonable time period between the advertising and the closing of Tenders.

Bidders are not usually required to make a deposit to obtain a copy of the Tender Documents. If a fee is charged, it is refunded if the Documents are returned.

A record must be kept of the names and addresses of the parties that have received the Tender Documents. This record is public information and is kept so that amendments (addenda) can be issued.

All bidders must be given equal information. Any clarification, changes or additional information must be transmitted to all the bidders. This is done by issuing an Addenda.

(3) Receiving and Opening Tenders

The time and date should be marked on Tenders as they are received. Late Tenders should be marked "Late Tender - Unopened" and returned unopened to the bidder.

The names of firms submitting Tenders and the number of tenders received is confidential until tenders are opened. Tenders should be opened immediately after the tender closing time. This will allow representatives of the bidders to be present.

The Tender opening is open to the public. When opened, the Tenders should first be checked for completeness and arithmetic errors. Tenders that are incomplete, unsigned, not submitted on the prescribed forms and in accordance with the Tender instructions, should be rejected. The rejection of a tender may be a difficult decision especially if the reasons are technicalities. To be fair and consistent, the first reaction should be to disqualify any tender that does not comply and only move from this position for very convincing reasons.

(4) Evaluation of the Tenders

The Municipality reserves the right to reject any or all of the tenders. Tenders should not be rejected for the purpose of appointing a Contractor who did not submit a Tender or to appoint a Contractor who did not submit a Tender in accordance with the Tender procedures, or for appointing a Contractor selected in advance. Tenders should not be called to obtain a cost estimate for the work or to decide if the Municipality will do the work itself.

Tenders should be evaluated on the basis of the bid price, unit prices and total price, and the experience, management, capability, past performance, and equipment of the bidder. An unrealistically low price is grounds for rejection. If there is some concern as to the price or qualifications of the bidder, he should be interviewed. If there is still some doubt, the bidder's experience, solvency or business record could be investigated with the bidder's permission. The Tenders are usually evaluated by the Municipal staff and sometimes by a consultant when appropriate. When the evaluation is complete, the bids and the evaluation should be summarized and a recommendation made. The Municipal Council will probably wish to consider the Tenders and they usually must approve the selection and price.

If all the Tenders exceed the Municipal budget, changes in the terms or scope of the work or other factors should be negotiated with the Bidder submitting the lowest acceptable Tender. If acceptable terms and price can be negotiated, the Contract can be rewritten and awarded.

Re-calling Tenders should be avoided unless significant changes are made to the Tender. Re-call should be by invitation to the lowest acceptable bidders.

(5) Awarding the Contract

Whenever possible, action on Tenders should be taken within ten days. Unsuccessful Bidders should be notified promptly and any security or Bid deposits should be returned as soon as is practical after the Contract has been awarded. The successful Bidder must be sent an official Notice of Award by double registered mail. Informal unofficial notice can also be given.

The Contract should be executed (i.e. signed) within ten days of awarding the Contract. An authorized representative of the successful Bidder signs three copies of the Contract and sends it to the Municipality along with any Performance Bond, Liability Insurance or other requirements. If everything is in order, an authorized representative of the Municipality executes the Contract and one copy is returned to the Contractor.

(6) Monitoring the Contractor

The requirements such as equipment, licenses, workman's compensation insurance and service schedule should be checked prior to the commencement of operations. The Contractor's compliance with the Contract, especially the quality of service, should be monitored continuously.

5.3.2 **Parts of a Tender Document.** Tendering is a common method of awarding construction and service contracts. The format and content are relatively standard. The objective is to provide the bidders with all of the information in an organized manner necessary to evaluate the work and the responsibilites that will be expected of them. The assembled information is called the "Tender Documents". It contains all the information and forms necessary to prepare and submit a Tender. A complete set of Tender Documents consists of the following:

(1) Invitation to Tender
(2) Instructions to Bidders
(3) Tender Form
(4) Articles of Agreement
(5) General Conditions
(6) Specifications
(7) Information on Building Units
(8) Plans and Figures
(9) Addenda

The following is a brief description of each section. The example Tender Documents in Appendix F should be consulted for more detailed information, explanation and examples.

(1) Invitation to Tender

This is a copy of the notice used to advertise the Tender. It contains the following:

(a) Identification of the owner (i.e. the Municipality).
(b) A brief description of the work to allow potential bidders to decide if the work interests them.
(c) The closing time, date and place for receiving Tenders.
(d) How and where to obtain the Tender Documents.

(2) Instructions to Bidders

This section provides general instructions for completing and submitting a Tender and includes the following:

(a) Clear instructions regarding the method, form and completeness of the Tender.
(b) Bid and Contract securities that may be required.
(c) Time and place for receiving Tenders and the identification of Tenders.
(d) Municipalities name and address and identification of the work or contract.

(3) Tender Form

This section is filled out by the Bidder and returned as their Tender. It contains the following:

(a) Identification and signature of the bidder.
(b) A declaration binding the bidder to enter into a Contract if requested.
(c) A Schedule of Prices form on which the bidder submits his bid prices for the work. It is laid out in the manner the Municipality wants to pay for the work and includes estimates of the quantities of work (e.g. water delivered) for items that have a unit price. The breakdown may be by the method of payment (e.g. unit prices or lump sum); the type of service or building; year of operation or other method.
(d) Start and completion date of the Contract.
(e) Samples of Bid Bond and Agreement to Bond forms if these are required.
(f) A Bidders Questionnaire in which the bidder may be asked to submit information to judge his ability to do the work.

(4) Articles of Agreement

A copy of the Articles of Agreement that the successful bidder and the Municipality will sign is included for information only. It includes the date, names and addresses of the parties, brief des-

cription of the work, start and completion date, and lists the parts of Tender Documents that are implicitly included as if they were written out in the Articles of Agreement.

Also included in this Section is a sample of a Performance Bond if required for the Contract.

(5) General Conditions

The General Conditions primarily detail the legal framework for the Contract and the responsibilities and relationships of the Contractor and the Municipality. These conditions will be common to most Contracts since they do not include the physical description of the operations.

The General Conditions can be amended or supplemented by including articles to a Section called Supplementary General Conditions. This allows the use of Standard General Conditions without re-typing.

(6) Specifications

In this Section the trucked service operations to be performed are detailed. Included are the responsibilities of the Contractor, as well as performance standards and criteria that must be met. Any special or unique items (e.g. Municipal supplied vehicles) are included. The Section is separated into divisions as follows:

(a) General Division is common to all trucked services.
(b) Service Divisions detail each service (i.e. water pumpout sewage, bagged/bucket sewage and garbage).

(7) Information on Building Units and Quantities.

This Section contains information on the building units to be serviced. It is provided to assist the Bidders in assessing the work and their bids. The information will depend on the services. It may include the water use, tank size, building types, total annual quantities of service and other physical and historical information on individual buildings or for the whole community.

(8) Plans and Figures

This Section contains plans which may show the location of the building units, the location of the truck water supply point(s), sewage disposal site(s), garbage dump, and any other relevent information.

(9) Addenda

These are amendments or additional information that emerge after the Tender Documents are printed or distributed.

5.3.3 **How to Prepare Tender Documents.** To prepare a set of Tender Documents from scratch would be very difficult and time consuming. For these reasons, an example that can be used as a model or basis for your Tender Documents has been provided in Appendix F. By using this example your time and work will be reduced considerably and hopefully some of the finer points of law and operation will not be missed.

You will have to make changes, deletions and additions to make the example suit your situation and requirements. To make the example more versatile and flexible, blank spaces and options have been provided. Blank spaces are left for items such as dates, name of the Municipality and various quantities. For some items, options are provided so you can easily select from different methods or wording. Any item can be changed or deleted and new items can be added.

To aid in understanding and making decisions, notes and instructions have been provided preceeding each Section of the Tender Documents and within the examples. These have been placed in boxes to easily identify them.

The steps to prepare a complete set of Tender Documents are as follows:

(1) Preview the whole example.
(2) Make the truck operation decisions (see Section 3) and tendering decisions (dates, security deposits, etc.).
(3) Go through each Section filling in the blanks, selecting options, making additions, deletions and changes as required. Add information on the building units and plans.
(4) Review any changes for cross references.
(5) Renumber items and change the Indices as required.
(6) Retype as necessary.
(7) Print and bind the completed Tender Documents.

5.4 Negotiated Contracts

You may think of a negotiated contract as a more informal process and arrangement than a tendered contract because you have to deal with only one Contractor. This attitude can be risky. Oral agreements or your own confidence in the integrity and workmanship of the Contractor are not a substitute for a clear, concise and comprehensive contract agreement. For these reasons the main parts of a negotiated contract are the same as a tendered contract.

In this subsection the procedures for negotiating contracts are laid out; the organization and parts of a contract are briefly described; and the method of preparing the contract documents are outlined by way of an example.

5.4.1 **Steps in Negotiating Contracts.** Before you start into negotiating a contract, be sure that you have authority from the Municipal Council. You may also want to be assured that the prospective Contractor is qualified and acceptable. As mentioned earlier, the first step required may be to publicly advertise your intention to enter into negotiations for a contract.

For the extension of an existing contract you may only have to negotiate a new Schedule of Prices. This can easily be done by writing up an agreement to amend the existing contract. An example of a Contract Amendment is provided in Appendix H. If the changes that you or the Contractor want are more substantial, you should draw up a new contract.

For a new contract you should first consider the trucked service options outlined in Section 3. The decisions that you must make include: the scope of the work; the duration of the contract; the method of payment; and any materials and equipment that the Municipality will supply. In negotiating a new contract the following steps should be followed:

(1) Prepare a Draft Contract

The preparation of a negotiated contract is described in Section 5.4.3. Basically you use the example Negotiated Contract in Appendix G as the basis for making up a Contract. You should look through the example contract documents and prepare a draft that meets your needs and requirements.

(2) Negotiate with Contractor

Before entering into negotiations with the Contractor you should have a good idea of what you want and have an estimate of the cost. Go over the major items with the Contractor. You should discuss possible ways of improving efficiency and reducing his costs but maintaining the quality of service and legal responsibilities that you require. One subject that the Contractor will probably be concerned about is the method of payment. Make any adjustments that are desirable and agreeable.

Have the Contractor prepare and submit unit prices and total costs for the work. You may request that the Contractor submit a cost breakdown for his estimated costs or previous costs. Cost items usually include: labour; vehicle capital and O&M; building capital and O&M; office administration and overhead; and profit.

You must decide if the Contractors price is fair. If you are a good bargainer you might be able to obtain a lower price but you should be honest and fair. There is no point in pushing a Contractor into a deal in which he has to "cut corners" to make a decent profit. On the other hand, your responsibility is to keep the costs down and you will have to defend the prices to the Municipal Council and to the public.

(3) Award the Contract

If agreeable terms and payment are negotiated the final contract can be drawn up and awarded. The Municipal Council will want to review and approve the major items and cost. The Contractor must furnish the Performance Bond, liability insurance, licenses, schedule of operations and other requirements before the Municipality signs the Contract.

(4) Monitor the Contractor

The Contractors performance should be monitored continuously.

5.4.2 **Parts of a Negotiated Contract.** There are two formats that can be used for a contract. One form includes all the conditions and specifications within the Articles of Agreement. For all but very simple and short contracts this can be cumbersome, especially if the terms in the This recontract are not grouped or in a logical sequence. A more flexible method is to provide all of the major items as attachments to the Articles of Agreement. This latter method allows you to use the example Tender Document in Appendix F. With the latter method, a negotiated contract may include the following attachments:

(1) General Conditions
(2) Specifications
(3) Plans and Figures
(4) Schedule of Prices
(5) Other Attachments.

The following is a brief description of the parts of a negotiated contract. The description of parts that have been previously outlined in Section 5.3.2 "Parts of a Tender Document" are not repeated.

(1) Articles of Agreement

This is basically the same as in the Tender Documents. It includes the date, names of the parties, a brief description or title of the operations, dates the contract is in effect and a list of the attachments that are implicitly included in the Articles of Agreement as if they were written out within the Agreement.

(2) General Conditions

This is the same as in the Tender Documents.

(3) Specifications

This is the same as in the Tender Documents.

(4) Plans and Figures

This is the same as in the Tender Documents.

(5) Schedule of Prices

This is basically the same as the Schedule of Prices in the Tender Form of the Tender Documents. It includes a breakdown of the prices to be paid for the operations. This breakdown may be by the method of payment, for example unit prices or lump sum; the type of service or building; years of operation or other method.

(6) Other Attachments

Other attachments that could be included are a Schedule of Operations, a Schedule of Approved Customers and a Claim Form for the Contractor to use to submit his invoice. These attachments should be included for information only, otherwise an amendment to the contract is required to change them.

5.4.3 **How to Prepare Negotiated Contract Documents.** The method and steps in preparing the negotiated contract documents are basically the same as for the Tender Documents outlined in Section 5.3.3. The exception is that you may prepare them with the assistance and agreement of the Contractor. You can prepare the negotiated contract documents using the example in Appendix G. The Sections that are the same as the example Tender Documents in Appendix F are not repeated.

The steps for preparing the complete contract documents are as follows:

(1) Preview the whole example.
(2) Make the trucked operation decisions (see Section 3) and contract decisions (e.g. dates, bonds, insurance, etc.).
(3) Go through each Section filling in the blanks, selecting options and making additions, deletions and changes. Add information for Plans, Schedule of Prices and other attachments.
(4) Go through each Section with the Contractor to reach a concensus.
(5) Review the documents for cross references.
(6) Renumber and change the Indices as required.
(7) Retype the documents as required.

REFERENCES

1. Smith, D.W. et al, "Cold Climtes Utilities Delivery Design Manual", Environment Canada, Water Pollution Control Directorate, Ottawa, Ontario, Economic and Technical Review Report EPS 3-WP-79-2, 1979.

2. Cameron, J.J. and B.C. Armstrong, "Water and Energy Conservation Alternatives for the North", Environmental Protection Service, Environment Canada, Edmonton, Alberta and Department of Local Government, Government of the Northwest Territories, Yellowknife, N.W.T., 1979.

3. Health and Welfare Canada, "Guidelines for Sewage Holding Tanks and Drinking Water Storage Tanks", Appendix B IN: Private Sewage System Regulations, Health and Welfare Canada Government of the Northwest Territories, Yellowknife, N.W.T., 1979, Draft.

4. Cameron, J.J., "Water and Sanitation Systems Analysis Computer Program - Volume I - A Cost Effective Approach", Northern Technology Unit, Water Pollution Control Directorate, Environmental Protection Service, Environment Canada, Edmonton, Alberta and Water and Sanitation Section, Town Planning and Lands Division, Department of Local Government, Government of the Northwest Territories, Yellowknife, N.W.T., 1979.

5. Ontario Ministry of Intergovernmental Affairs, "Minicomputers", Local Government Division, Municipal Administration Branch, Ontario Ministry of Intergovernmental Affairs, Toronto, Ontario, Local Government Bulletin 22, 1979.

6. Ontario Ministry of Intergovernmental Affairs, "Using Computers - A Guide for Municipalities in Ontario", Municipal Administration Branch, Local Government Division, Ontario Ministry of Intergovernmental Affairs, Toronto, Ontario, 1980.

7. Grinnell, D.J. and R.F. Kochanek, "Water Utility Accounting", American Water Works Association, New York, N.Y., 1980.

APPENDIX A

CONVERSION FACTORS AND ABBREVIATIONS

CONVERSION FACTORS AND ABBREVIATIONS

ABBREVIATIONS

I gal.	= Imperial Gallons	L	= Litres
U.S. gal.	= United States Gallons	m^3	= Cubic Meters
lbs.	= Pounds (British)	Kg	= Kilograms
ton	= Ton (British)	tonne	= Tonne (Metric)
mi.	= Miles	Km	= Kilometers
ft.	= Feet	m	= Meters
in.	= Inches	cm	= Centimeter
°F	= Degrees Fahrenheit	C	= Degrees Celsius (Centigrade)

CONVERSION FACTORS

Volume:

Imperial gallon	=	4.546 litres
	=	0.004546 cubic meters
	=	1.20 U.S. gallons
Cubic meter	=	1000 liters
	=	220 Imperial Gallons
	=	1.3 cubic yards

Weight:

pound	=	0.454 kilograms
kilogram	=	2.205 pounds
ton (British)	=	0.91 (metric) tonnes
	=	907.0 kilograms
	=	2000 pounds

Distance:

mile	=	1.609 kilometers
kilometer	=	0.6214 miles
	=	1000 meters
foot	=	0.3048 meters
meter	=	3.281 feet
	=	100 centimeters
inch	=	2.54 centimeters
centimeter	=	0.394 inches

Temperature:

°F = (°C x 9/5) + 32 = (1.8 x °C) = 32
°C = (°F - 32) x 5/9 = (°F -32) x 0.556

°F	°C
68°	20°
32°	0°
-40°	-40°

APPENDIX B

VEHICLE SPECIFICATIONS

APPENDIX B*

VEHICLE SPECIFICATIONS

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* from: "Cold Climates Utilities Delivery Design Manual"
Environment Canada, Report EPS 3-WP-79-2

B VEHICLE SPECIFICATIONS

B.1 Municipal Water Delivery Truck - Hydraulic Drive

These vehicle and tank specifications are abstracted from "Equipment Specification Number 601", prepared by the Department of Public Works, Government of the Northwest Territories, Yellowknife, N.W.T. The complete text should be consulted for detailed specifications.

Tank Body

A. Product: Potable Water

B. Capacity: 4500 L (1000 Imperial Gallons), nominal

C. Installation

1. Tank to be mounted on rubber bedding, attached to chassis with U-bolts. In addition to U-bolts, suitable steel lugs and pockets are to be installed to prevent lateral and longitudinal shifting of tank on chassis.
2. Tank body to be removable from chassis as a unit, lifting lugs provided and positioned so body is properly balanced for hoisting.
3. Installed to provide proper weight distribution between front and rear axles as recommended by chassis manufacturer.

D. Construction

1. Tank to be welded steel, minimum thickness 10 gauge (3.4 mm). Oval cross-section, overall width not to exceed width of cab. Interior of tank baffled to restrict surge action. Baffles designed to allow adequate circulation of water along bottom of tank to prevent freezing.
2. A compartment is to be included at the rear of the tank. This compartment, which is to be used for housing pump and hose reel, is to be constructed as an integral part of the tank, not as a separate attachment. The floor of the rear compartment is to be dropped such that the pump suction outlet will be level with the tank outlet.

3. Tank Outlets

a) one 63.5 mm pipe thread outlet in rear head, at the bottom, for pump suction.

b) one 50.8 mm pipe thread outlet in rear head, at the top, for filling tank and circulation return.

c) One 50.8 mm pipe thread outlet in belly of tank, near the front, to be used as a cleanout. Outlet to be fitted with a square head pipe plug and sealed with teflon tape.

d) All outlets will be extended 50 mm to clear the tank insulation and will be flanged for attaching the protective 18 gauge (1.2 mm) skin.

e) Where the 63.5 mm suction outlet and the return outlet are installed in the tank, the tank will be reinforced with 10 gauge (3.4 mm) steel plate.

4. A combination top loading hatch, access manhole and vacuum/pressure breather is to be installed on top of tank.

5. An expanded metal walkway along top of tank, wide and extending the full length of the tank is to be installed.

6. A curbside access ladder will be installed adjacent to the top loading hatch.

7. Top loading hatch, walkway and ladder will be attached to the inner tank wall and not to the protective outer skin.

8. Insulation

a) The complete tank and rear compartment, excluding compartment doors, but including both ends of the tank is to be insulated with 5 cm of sprayed-on urethane insulation.

b) All insulation, including the insulation on the tank and compartment underside and compartment doors, is to be covered with a protective metal skin. This skin will be a minimum thickness of 18 gauge (1.2 mm).

9. Rear Compartment Access

a) Two swing up compartment doors will be provided on the rear of the compartment. Both doors will be insulated with 4 cm of sprayed-on urethane insulation.

b) Hose rollers will be provided on both sides and bottom edge of hose hatch. The rollers will be positioned to allow dispensing hose at angles up to 45° without contacting edge of hatch.

10. Suction Hose Storage

a) Two storage tubes to be provided for the 63.5 mm suction hose. Each tube long enough to contain a 2.4 m length of hose, with couplings and suction strainer.

11. A rear bumper will be installed to protect the rear of the tank body.

E. Water Pump

1. Pump installed is to be hydraulic motor driven Gorman Rupp Model 03H1-G centrifugal self priming PTO pump, mounted in rear compartment.

F. Water System - Piping and Valves

1. The system must be able to:

a) Fill tank by drafting from a source.

b) Discharge water from tank through hose.

c) Discharge water from tank through fire outlet.

d) Circulate water in tank.

All piping to be galvanized steel schedule 40 with threaded/flanged/VICTAULIC joints. Sufficient unions to be installed to allow easy removal of pump and hose reel. All pipe threads to be sealed with teflon tape.

3. All valves to be 1/4 turn ball valves, lever operated.

4. VICTAULIC Couplings to be installed between the water tank and the pump suction valve and between the water tank and the circulate/return line.

G. Water System - Equipment

1. Delivery hose to be 30.5 m of 38.1 mm I.D. smooth bore, non-collapsing booster hose. Low-temperature type, flexible enough at -45°C to allow rewinding on reel. Dispensing end of hose fitted with a female quick coupling adaptor, EVER-TITE or compatible type coupling.

2. Two 2.4 m lengths of 63.5 mm I.D. rubber suction hose. Low temperature type, flexible to -45°C. One section equipped with a female quick coupling on one end, and a suction strainer on the other. Couplings to be EVER-TITE or compatible type.

3. Booster Reel

   a) Electric rewind.

   b) Auxilliary rewind crank supplied, to be mounted on brackets inside compartment.

   c) Reel push button mounted outside compartment.

   d) Roller hose guides to be provided.

H. Hydraulic Water Pump Drive System

1. Hydraulic System - General:
   The water delivery pump will be driven by a hydraulic motor and PTO mounted hydraulic pump. Hydraulic pump will be direct PTO mount type.

2. Reservoir:
   Mounted behind cab, alongside the truck frame, capacity to be 25 U.S. gallons.

3. Hydraulic Lines/Fittings:
   All hydaulic lines will be of a type approved for this service. Hose to be low-temperature type, rated for operation over the temperature range from -40°C to +80°C minimum.

I. Compartment Heater

1. A hot water heater is to be installed in the rear compartment.
2. Rated 12 000 W minimum, for 80°C supply water.

J. Controls - Hydraulic and Water Systems

Both the hydraulic system and water system will be provided with remote controls such that all functions can be achieved without opening the rear compartment doors.

K. Paint/Coatings

Interior of tank to be treated and coated with a non-toxic rust and corrosion preventive material approved for mobile potable water tanks.

L. Testing

Before acceptance the unit will be tested and the results of the tests recorded. The following tests must be satisfactorily completed:

a) Fill tank by suction from a source at least 2.4 m below the level of the pump centreline, with 4.9 m of suction hose connected.

b) Run a two hour pump test on a 50% duty cycle, pumping at full capacity for 15 minutes, resting for 15 minutes.

M. Operation and Maintenance (O&M) Manuals

1. Two complete copies are required for each vehicle.
2. Manuals must include:
   a) Parts catalogue for all installed equipment.
   b) Repair and service instructions.

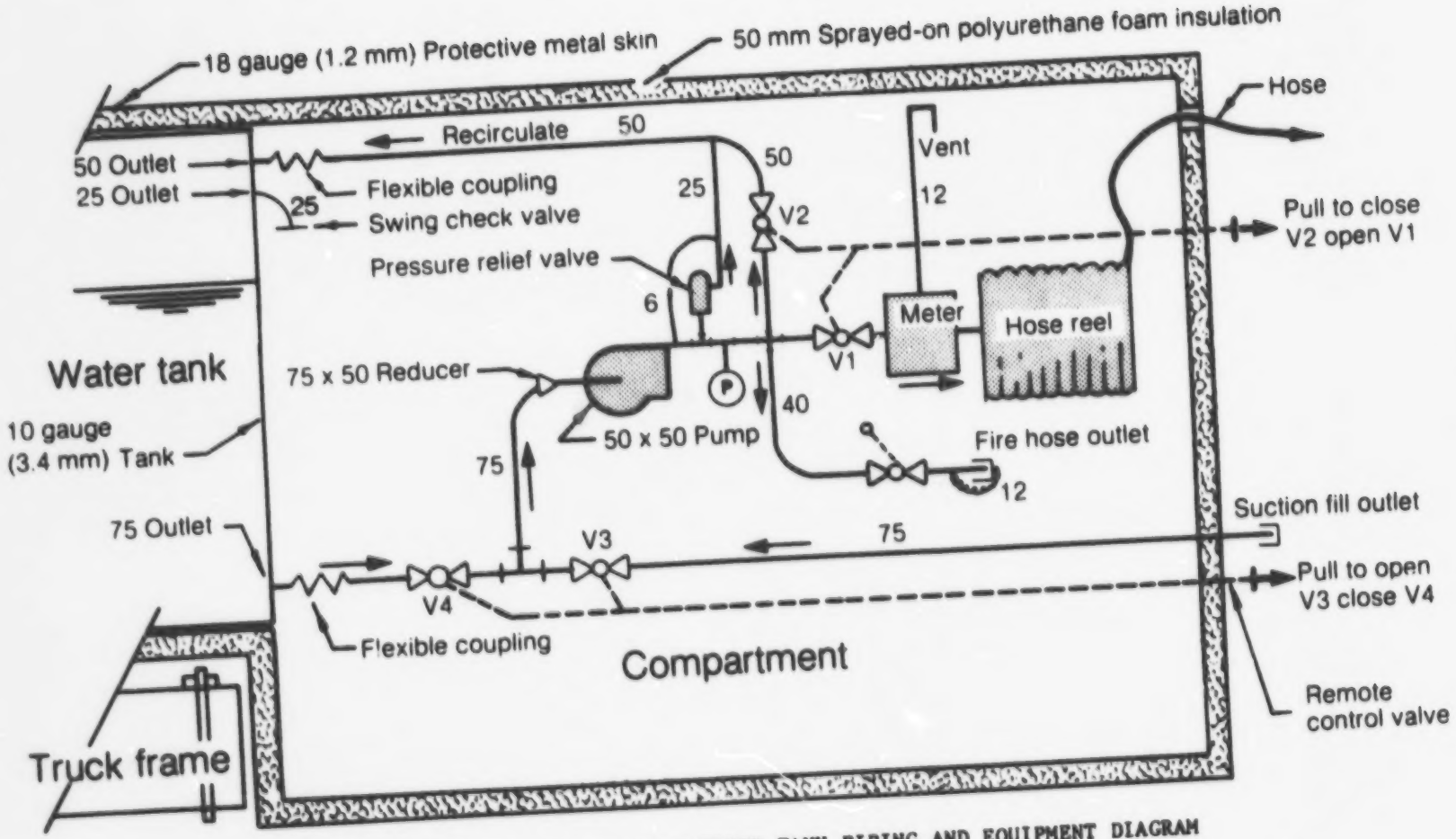

FIGURE B-1. WATER DELIVERY TRUCK TANK PIPING AND EQUIPMENT DIAGRAM

.2 Municipal Vacuum Induction Sewage Truck - Power Take Off (PTO) Drive

These vehicle and tank specifications are abstracted from "Equipment Specification Number 607", prepared by the Department of Public Works, Government of the Northwest Territories, Yellowknife, N.W.T. The complete test should be consulted for detailed specifications.

A. Product: Domestic sewage and wastewater.

B. Capacity: 1000 Imperial gallons (4500 L), nominal.

C. Installation

1. Tank mounted on rubber bedding, attached to chassis with U-bolts. In addition to U-bolts, suitable steel lugs and pockets are to be installed to prevent lateral and longitudinal shifting of tank on chassis.
2. Tank body removable from chassis as a unit, lifting lugs provided and positioned so body is properly balanced for hoisting.
3. Installed to provide proper weight distribution between front and rear axles as recommended by chassis manufacturer.

D. Construction

1. Tank to be all-welded steel pressure vessel. Round cross-section, overall diameter not to exceed width of cab.
2. Rear work step provided with open mesh, expanded metal surface. Step to be a minimum 300 mm deep, extending width of tank body.
3. Heavy gauge rear bumper installed, extending width of tank body and equipped with rubber dock bumpers. Bumper to extend beyond work step.
4. Hinged rear end bell or hinged manhole cover installed, minimum 810 mm diameter. Installed with re-usable gasket.
5. Float type water level gauge visible from operator's position while filling. Float designed so as not to rest on tank bottom when tank is empty (to prevent freezing).
6. Storage trays for suction hose on side of tank body.
7. Hooks installed on side of tank for temporary storage of fully assembled suction hose.

E. Vacuum/Pressure Pump

1. PTO/V-belt drive.
2. Vane type, rated 3.54 m^3/min free air, and up to 686 mm of mercury vacuum minimum.

F. Piping and Valves

1. Float type primary shutoff valve installed to prevent tank overflow into vacuum system.
2. Secondary water trap installed in vacuum line to prevent moisture being drawn into pump. Water trap equipped with sight glass.
3. Fill outlet:
   a) Positioned on rear end bell, or manhole cover is so equipped, at a maximum height of 1.37 m above ground level.
   b) 76.2 mm swing type check valve installed on the interior side of tank wall.
   c) Lever-operated, quick-opening gate valve, 76.2 mm pipe size.
   d) Quick-coupling, male hose adapter installed with female cap and keeper chain.
4. Discharge Outlet:
   a) Positioned adjacent to fill outlet on rear end bell, or manhole cover is so equipped.
   b) To be 152.4 mm pipe size.
   c) Lever-operated, quick-opening gate valve, 152.4 mm pipe size installed.
   d) Quick-coupling, male hose adapter installed with female cap and keeper chain.
5. All valves, adapters and piping of a type approved for water service.
6. Compound gauge installed visible from pump operator's position. Range: 762 mm of mercury vacuum to 345 kPa of pressure minimum.
7. Flexible rubber hose coupled to pump exhaust/intake discharging under tank body, away from operator. Hose end located as high above ground level as possible to prevent dust intake.

G. Equipment

1. Four, 2.4-m lengths of 76.2-mm suction hose equipped with quick couplers. Three lengths to have one female and one male quick coupler, one length to have female quick couplers both ends. Hose to remain flexible at -50°C.
2. All quick couplers supplied for hose, discharge valve and fill valve to be of the same make.

H. Controls

1. PTO lever or cable controlled from cab: "PTO ENGAGED" warning light in cab.
2. Valve controls to be easily accessible.
3. Pump operating instructions to be printed on side of tank near operator's position. Use permanent type decal or engraved plastic or metal plaque. (DYMO type embossed labels are not acceptable).

I. Paint

1. Interior of tank to be coated with a rust and corrosive preventative meterial.
2. All surfaces to be fully primed before painting.

J. Operations and Maintenance Manuals

Manuals must include:

a) Parts catalogue for all parts.
b) Repair and service instruction.
c) Operation manual.
d) Weight and balance sheet.
e) Equipment Data Sheet.

APPENDIX C

TRUCKED SYSTEM TIME AND COST ESTIMATING EQUATIONS

APPENDIX C *

TRUCK SYSTEM TIME AND COSTING EQUATIONS

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* from: "Cold Climates Utilities Delivery Design Manual"
Environment Canada, Report EPS 3-WP-79-2

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C TRUCKED SYSTEMS TIME AND COSTING EQUATIONS

C.1 Trucked System Analysis

This appendix presents a detailed and simplified method of analyzing the characteristics and associated costs of trucked water delivery, sewage pump-out, honeybag collection and garbage collection systems for a particular community. It is abstracted from procedures developed by the Department of Local Government, Government of the N.W.T. [1], based on work by Gamble and Janssen [2].

Each system is basically the same and can be analysed using the same general equations. To help illustrate the model, a brief description of the water delivery procedure follows.

The vehicle must load up its tank at the source, travel to the community, deliver the water house-to-house by filling up the individual tanks until the vehicle tank is empty, and then return to the source. This is repeated until all the houses have had their water tanks filled. The entire process is repeated as soon as the house water tanks are emptied by the occupants.

The time involved in performing the above task can be represented by equations which quantify the characteristics of the delivery system.

Beginning at the source, the time to fill the vehicle tank can be expressed as the time for the pump to fill the tank plus the time required to start the pump, hook and unhook the hoses, etc. Then there is travelling time between the community and the source of water, and analogous time going from house to house filling the water tanks and hooking up the hoses. The time spent servicing the houses is multiplied by the number of dwellings serviced per truck tank load.

As one can appreciate, precisely the same steps are also required for the sewage pump-out, honeybag and garbage collection systems, although the system parameters such as tank sizes, travelling times, etc., are different.

C.1.1 General equations

The following system of equations applies for a particular year under consideration, and for a particular set of community,

building and vehicle characteristics. The costs are based on equivalent annual costs.

(1) Circuit time

a) $CT = CST + CSTT + CBT$

where: CT = estimated time to service a defined group of buildings once (hours),

CST = estimated time to turn around, hook/disconnect, pump, etc., at source or disposal point (hours),

CSTT = estimated time to travel to and from the community and the source/disposal point (hours),

CBT = estimated time to travel and service the buildings within the community (hours).

b) $$CSTT = EL \times NB \times \left[\frac{C \times CSF}{VS \times VUF}\right] \times \frac{2D}{S}$$

where: EL = estimated efficiency of labour. Recognizing the fact that only five effective hours would normally be used in a 7½-hour day, the theoretical circuit for each system must be multiplied by 1.5 to calculate the estimated actual circuit time, i.e., EL will normally equal 1.5,

NB = the number of buildings in the defined group to be serviced, e.g., commercial, residential, full plumbing houses, etc.,

C = average container size for the buildings, e.g., water tank, garbage barrel, etc.,

CSF = container safety factor to ensure that the circuit time accounts for under-utilization of the container size, e.g., the water delivery truck will refill the tank before the building runs out of water (usually taken to be 0.85),

VS = vehicle size, e.g., 4500-L water truck, 5-m^3 garbage truck, etc.,

VUF = vehicle use factor for under-utilization of the vehicle container volume, e.g, usually 0.95 for water trucks and 0.80 for garbage trucks,

D = travel distance to and from source or treatment/ disposal point (kilometres),

S = speed of vehicle to and from source or treatment/ disposal point (kilometres).

c) $$CST = EL \times NB \times \left[\frac{C \times CSF}{VS \times VUF}\right]\left[\frac{VS}{60 \times R} + \frac{TT}{60}\right]$$

where: R = rate of filling or emptying the vehicle container at the source or disposal point (litres per minute),

TT = turn-around time at source or disposal point, i.e., time required to hook-up, disconnect, turn around, etc., exclusive of time occupied by emptying or filling the vehicle (minutes).

d) $$CBT = EL \times NB \times \left[\frac{DB}{1000 \times SB} + \frac{C \times CSF}{60 \times RB} + NTB \times \frac{TTB}{60}\right]$$

where: DB = average distance between building hook-ups (metres),

SB = average speed that the vehicles travel between the buildings (kilometres/hour),

RB = rate of filling or emptying the vehicle container while servicing the buildings in the community (litres per minute),

TTB = average turn-around time while servicing each building (filling or emptying time not included) (minutes),

NTB = number of vehicle visits or trips to service each building container,

NTB = 1 if $\frac{C \times CSF}{VS \times VUF} \leq 1$, i.e., building container is smaller than the vehicle,

= $\frac{C \times CSF}{VS \times VUF}$ if $\frac{C \times CSF}{VS \times VUF} > 1$.

e) Therefore, the Circuit Time equation becomes:

$$CT = CST + CSTT + CBT$$

$$= EL \times NB \times \left(\left[\frac{C \times CSF}{VS \times VUF}\right] \times \left[\frac{2D}{S} + \frac{VS}{60.R} + \frac{TT}{60}\right] + \frac{DB}{1000 \times SB} + \frac{C \times CSF}{60 \times RB} + \frac{TTB}{60} \times NTB\right)$$

(2) Frequency. The servicing cycle must be repeated as soon as the building containers have been emptied or filled. Assuming a certain consumption or generation rate, the servicing frequency is given by:

$$F = \frac{NOPB \times VPCD}{C \times CSF} \times 365$$

where: F = the number of circuits required per year to adequately service the buildings.

NOPB = average number of persons per building (real or equivalent),

VPCD = the volume of water consumed or waste generated per capita per day (water = litres/person/day; garbage = m^3/person/day).

NOTE: For garbage and honeybag collection, frequency is usually fixed by policy and is not a variable.

(3) Total hours. It follows that:

$$THRS = CT \times F$$

where: THRS = total hours per year required to provide the service.

(4) Number of vehicles. Knowing the time per complete delivery cycle, i.e., circuit time and the frequency with which it must be performed, allows the computation of the number of vehicles. The number of vehicles required is equal to the circuit time multiplied by the frequency and divided by the total time a vehicle is required to be available. To account for Sunday, and the fact each vehicle requires maintenance, it has been assumed that each vehicle is available for work 7.5 hours per day for 5.5 days/week.

Therefore: $$NV = \frac{CT \times F}{7.5 \times 5.5 \times 52}$$

where: NV = exact number of vehicles required.

Further: $INV = NV^{>NV}$

where: INV = The smallest integer larger than NV, i.e., simply the actual number of vehicles required.

(5) Vehicle costs. Knowing the number of vehicles required and their utilization permits the calculation of the total annual cost of each system to serve the defined group of buildings.

a) Vehicle Annual Capital Cost:

$$VACC = INV \times VRC \times VCRF$$

or $$VCC = INV \times VRC$$

where: VACC = vehicles annual capital cost (dollars),
VCC = vehicles capital cost (dollars),
VRC = current vehicle replacement cost in community (dollars),
VCRF = vehicle capital recovery factor.

and $$VRC = VC + (VW \times VTFR)$$

where: VC = current vehicle cost F.O.B. "south", e.g., Montreal, Winnipeg or Edmonton (dollars),
VW = vehicle weight (tons),
VTFR = vehicle transportation freight rate to community (dollars/ton).

and

$$VCRF = \frac{\frac{DR}{100}\left(1 + \frac{DR}{100}\right)^{VEL}}{\left(1 + \frac{DR}{100}\right)^{VEL} - 1}$$

where: VEL = vehicle economic life in years (generally 4 years),
DR = discount rate expressed as a percentage (as a general value use 8%).

b) Vehicle Annual O&M Cost:

$$VAOMC = VSC + VOC$$

where: VAOMC = vehicle annual O&M cost (dollars),
VSC = vehicle service cost, which includes painting, major repairs, overhaul (dollars),
VOC = vehicle operating cost, which includes fuel, oil, minor maintenance (dollars).

and, $$VSC = INV \times VRC \times VSF$$

where: VSF = vehicle service factor. As a general guide use:
= 0.21 for tracked water/sewage vehicles,
= 0.15 for wheeled water/sewage vehicles,
= 0.30 for garbage and honeybag vehicles,

and, VOC = VOCPH x THRS (dollars/year)

where: VOCPH = BHP (FR x FUEL + MISC),
VOCPH = vehicle operating cost per hour (dollars/hour),
FR = fuel consumption rate (litres per kilowatt hour). As a general guide use:
= 0.24 for wheeled vehicles (gasoline),
= 0.37 for tracked vehicles (gasoline).
FUEL = fuel cost (dollars/litre),
MISC = miscellaneous operating cost factor. As a general guide use:
= 0.011 for wheeled vehicles,
= 0.013 for tracked vehicles.
BHP = brake horsepower of vehicle (kilowatts). As a general value this is approximately 1/5th engine horsepower.

NOTE: VSF, FR and MISC were determined according to Canadian Construction Association cost calculation methods [3].

c) Vehicle Total Annual Cost:

VTAC = VACC + VAOMC

where: VTAC = vehicle total annual cost.

(6) Labour Cost per Year:

LCPA = LCPH x THRS

where: LCPA = labour cost per year (dollars),

and, LCPH = [WD + WH x NH] LBF

where: LCPH = labour cost per hour (dollars/hour),
WD = hourly wage of driver (dollars/hour),
WH = hourly wage of helpers (dollars/hour),
NH = number of helpers,
LBF = labour benefits factor. This factor converts the hourly wage rate into the actual payroll

cost of worker, i.e., workers' hourly wage plus employer's contributions to health pension and other benefits plus miscellaneous items, usually LBF = 1.2.

(7) Parking Garages Cost

a) Parking Garage Annual Capital Cost:

$$PGCC = (PGBSF \times NCI) \times VSR \times INV \times f(INV)$$

where: PGCC = capital cost of parking garage (dollars),

PGBSF = base cost per square metre of floor space in the parking garage; it is a function of the size, i.e., the number of vehicles required (dollars/m^2), range of approximately \$300/m^2 to \$500/m^2.

VSR = vehicle space requirement (m^2); typically VSR will equal approximately 75 m^2,

f(INV) = a function of the integer number of vehicles to account for changing vehicle space requirements and cost per m^2 of space in the parking garage as the number of vehicles increases,

NCI = Northern Community Index, which related base costs to specific community costs [4]. Range from 1.0 to 2.0.

and, PGACC = PGCC x PGCRF

where: PGACC = annual capital cost of parking garage (dollars per year),

PGCRF = parking garage capital recovery factor.

and,

$$PGCRF = \frac{\frac{DR}{100}\left(1 + \frac{DR}{100}\right)^{PGEL}}{\left(1 + \frac{DR}{100}\right)^{PGEL} - 1}$$

where: PGEL = parking garage economic life (years). As a general value use 10 years.

b) Parking Garage Annual O&M Cost:

PGAOMC = PGCC x PGOMF

where: PGAOMC = parking garage annual O&M cost,

PGOMF = parking garage O&M factor. As a general value use 0.06.

c) Parking Garage Total Annual Cost:

PGTAC = PGACC + PGAOMC

where: PGTAC = parking garage total annual cost.

(8) Associated Costs of Building Containers

ACCB = NB x CUC x C x NCI for trucked water, sewage pump-out and garbage service,

= NB x CUC x C x NCI x F for trucked honeybag service,

AACCB = ACCB x ACBCRF

where: ACCB = associated capital cost to buildings (dollars),

AACCB = associated annual capital cost to buildings (dollars/year),

CUC = container unit capital costs. It is a function of container size and type, i.e., water, sewage pump-out, garbage, honeybag (dollars per cubic metre),

ACBCRF = associated cost to buildings capital recovery factor,

and

$$ABCEL = \frac{\frac{DR}{100}\left(1 + \frac{DR}{100}\right)^{ABCEL}}{\left(1 + \frac{DR}{100}\right)^{ABCEL} - 1}$$

= 1 for honeybag collection/disposal only,

where: ABCEL = associated building container economic life.

b) AAOMCB = ACCB x AOMFB

where: AAOMCB = annual associated O&M cost to buildings (dollars/year),

AOMFB = annual O&M factor for buildings. As a general value use 0.02.

c) Total Annual Associated Costs for Building Containers:

ATACB = AACCB + AAOMCB

where: ATACB = associated total annual cost to buildings (dollars).

(9) Trucked System Total Costs

a) Total Capital Costs:

$$TSCC = VCC + PGCC + ACCB$$

$$TSACC = VACC + PGACC + AACCB$$

where: TSCC = trucked system capital costs (dollars),

TSACC = trucked system annual capital costs (dollars/year).

b) Total Annual Operations and Maintenance Costs:

$$TSAOMC = VAOMC + LCPA + PGAOMC + AAOMCB$$

where: TSAOMC = trucked system annual O&M costs (dollars/year).

c) Total Annual Costs:

$$TSTAC = TSACC + TSAOMC$$

where: TSTAC = trucked system total annual cost (dollars/year).

NOTE: By manipulating the equations the total cost can be broken down into the portions attributable to servicing the buildings and the source/disposal related costs.

(10) Cost per Unit Service

a) Water Delivery and Sewage Pump-Out:

$$CPG = \frac{(TSTAC - ATACB)}{NB \times NOPB \times VPCD \times 365}$$

where: CPG = average cost per litre (dollars/litre).

b) Garbage and Honeybag:

$$CPP = \frac{(TSTAC - ATACB)}{52 \times NB \times F}$$

where: CPP = average cost per pick-up (dollars/pickup).

NOTE: This variable may also be expressed as cost per container size; however, cost per pick-up is a more significant statistic.

C.1.2 Application of truck system equations

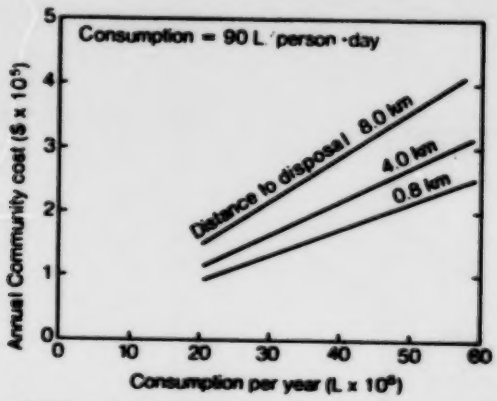
The equations presented in this Appendix can be used to estimate the cost of trucked water delivery and sewage pump-out, garbage and honeybag collection services for individual or groups of buildings, or for

whole communities [4]. They can also be used to optimize the design or sizing of components and equipment for a particular location. For example, various vehicle sizes, within the limitations of the road system and maneuverability requirements, can be assessed and building containers matched to provide a least-cost system. Technical improvements to increase the efficiency can also be identified.

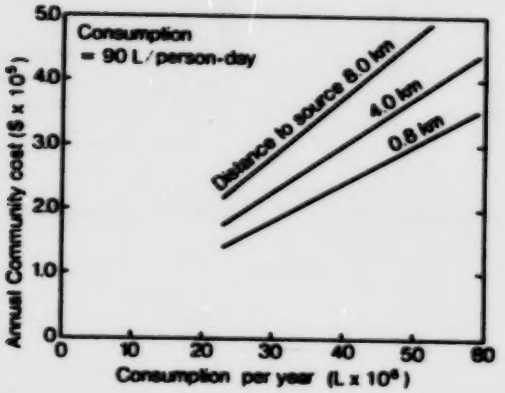
The equations and their applications are particularly suited to evaluation by computer or programmable calculator. By repeating the general equation, the cost for various building catagories within the community can be calculated and summed to a total system cost. Changes due to growth and increased water demand can be incorporated and costs over an economic planning horizon, say 20 years, can be obtained.

The most significant variable with respect to the cost of trucked water and sewage service is the quantities of water consumed and waste generated. The quantities necessary for sanitation and convenience must be carefully and realistically estimated. Many water conservation alternatives will be economical and should be incorporated into building plumbing (see Appendix B). Their use should be encouraged, particularly where such systems are subsidized. In many cases, it is more economical to pipe water from a distant source to a central truck fill point for distribution. The benefits of this and similar alternatives can be quickly identified by solving the general equations for the particular conditions in question. In some locations, the inherent lower water demand and storage requirements with trucked systems compared to piped systems will be a significant economic and practical advantage. Portions of communities, such as large consumers or compact or high density areas, may be more economically serviced by piped systems. Conversely, housing that is spread out, or where other conditions make it expensive to pipe service, at least during the winter, may be more economically serviced by a truck water and/or sewage system. The cost of truck servicing is relatively insensitive to housing density.

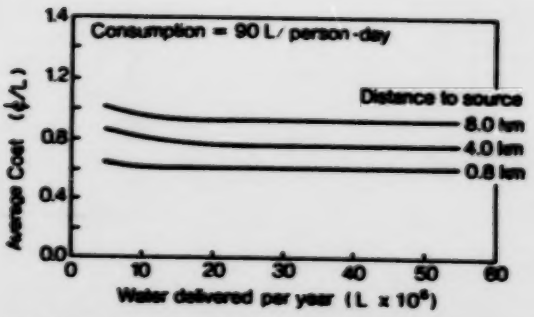
The effects of various factors on the cost of trucked system servicing are illustrated in Figure C-1 [5]. Figures C-1(a) and (b) show the effects of distance to the water source and sewage disposal on the



(a) Influence of distance to disposal on cost of sewage collection

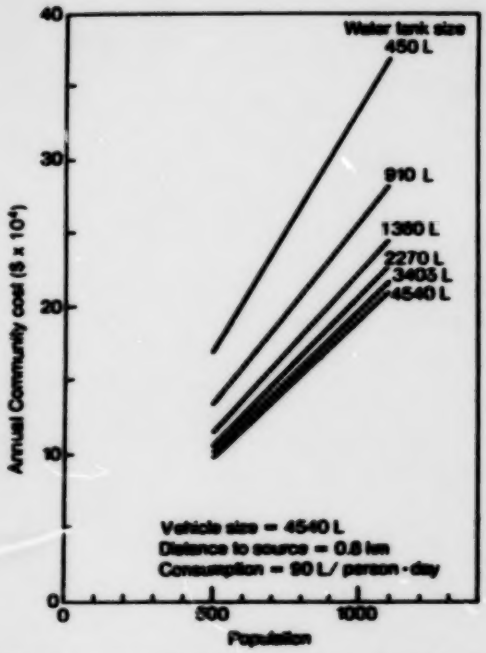


(b) Influence of distance to source on cost of water delivery

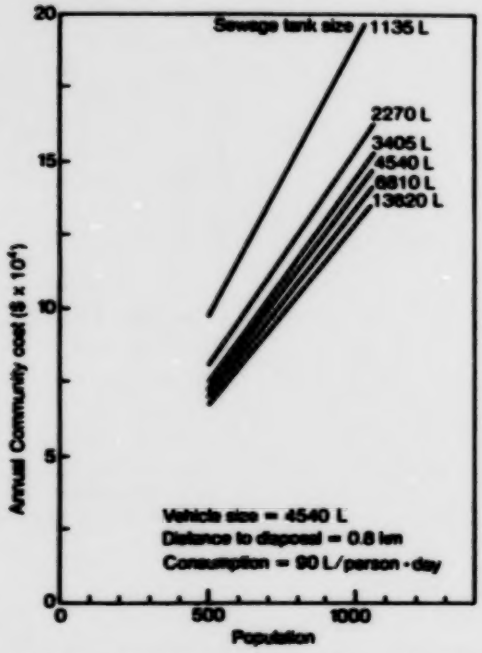


(c) Influence of distance to source on unit cost of water delivery

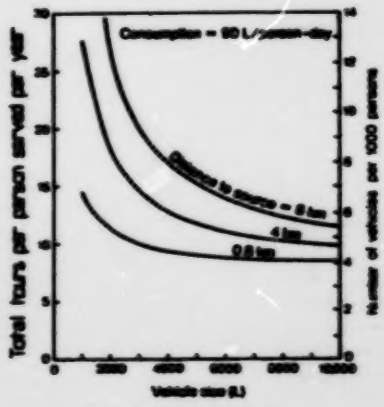
FIGURE C-1. INFLUENCE OF VARIOUS FACTORS ON COST OF TRUCKED SERVICE



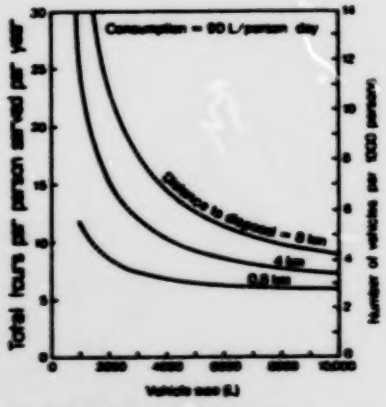
(d) Influence of household water tank size on water delivery costs



(e) Influence of household sewage tank size on sewage collection costs


Consumption = 90 L/person-day
Distance to source = 8 km
4 km
0.8 km
Total hours per person served per year
Number of vehicles per 1000 persons
Vehicle size (L)

(f) Influence of vehicle size on water delivery


Consumption = 90 L/person-day
Distance to disposal = 8 km
4 km
0.8 km
Total hours per person served per year
Number of vehicles per 1000 persons
Vehicle size (L)

(g) Influence of vehicle size on sewage collection

FIGURE C-1 (CONT'D)

total annual capital and O&M cost at a discount rate of 8%. FigureC -1(c) illustrates the influence of water source location and total annual consumption on the unit cost of water delivery. It shows that the cost per litre is relatively constant for a fixed average daily per person consumption. Figures C-1(d) and (e) show the effects of the size of the building tanks on the total costs. In this case, for a 4500-L vehicle it can be seen that there is little economic benefit of water tanks over 2250 L (five days consumption) and sewage holding tanks over 3400 L (7.6 days production). Figures C-1 (f) and (g) indicate the influence of the vehicle size on the total hours to service each person. It can be seen that vehicles larger than 4500 L are only of significant benefit when the source or disposal site is some distance from the buildings being serviced.

A breakdown of the total delivery costs of trucked water and sewage systems is presented in Table C-1. These values are for typical conditions and should only be used for preliminary estimating purposes. Typical economic rates for water delivery and sewage pump-out service inclusive are 1¢ to 2¢ per litre.

TABLE C-1. BREAKDOWN OF ANNUAL COST OF TRUCKED WATER DELIVERY OR SEWAGE PUMPOUT*

Vehicle Capital	= 14% (4-year life)
Vehicle O&M	= 25% (repairs, fuel, etc.)
Garage Capital	= 9% (construction, 10-year life)
Garage O&M	= 4% (heat, repairs, etc.)
Labour	= 48% ($13/hour for two men)

* Assumes a discount rate of 8%. The cost of building tanks is excluded.

C.2 Data Supplement for Trucked Systems

A considerable amount of data particular to the Northwest Territories water and sanitation systems has been compiled by the Department of Local Government. It has been determined from analysis of the data that a number of parameters can be assumed to be the same for the typical vehicles being used and community conditions. Also, some parameters, such as the distance between buildings, are relatively

insensitive to the total cost and reasonable values can be assumed. This data is summarized in Table C-2. It should be noted that, in certain communities, unusual local conditions or equipment may result in some parameters differing somewhat from those presented in this table. The analyst should assess the community in question to ascertain the reasonableness of the parameters.

Costs for wheeled and tracked water and sewer vehicles are presented in Table C-3. These are 1977 costs at a southern centre (e.g., Edmonton, Winnipeg, Montreal) and the transportation costs to specific communities must be added to these values. Adjustments for various options or alternatives are presented. A detailed breakdown of a steel water tank and appurtenances is shown in Table C-4.

TABLE C-2. TYPICAL VALUES FOR TRUCKED SYSTEM PARAMETERS [1]

	Trucked Water Supply Distribution	Trucked Sewage Collection & Disposal	Trucked Honeybag Collection & Disposal	Trucked Garbage Collection & Disposal
Efficiency of labour (EL)	1.5	1.5	1.5	1.5
Building container size (C)	5 days demand	7 days demand	0.03 m^3	0.2 m^3
Container utilization factor (CSF)	0.85	0.85	0.85	0.85
Vehicle Size (VS)	4500 L	4500 L	1.4 m^3	4.5 m^3
Vehicle utilization factor (VUF)	0.95	0.95	0.85	0.85
Speed of vehicle to and from source or treatment/ disposal point (S)	25 kmh	25 kmh	25 kmh	25 kmh
Rate of filling or emptying the vehicle container at the source or disposal point (R)	450 L/min	450 L/min	0.086 m^3	0.26 m^3
Turn around time at source or disposal point - emptying or filling time not included (TT)	4.0 min	4.0 min	1.0 min	1.0 min

TABLE C-2. (CONTINUED)

	Trucked Water Supply Distribution	Trucked Sewage Collection & Disposal	Trucked Honeybag Collection & Disposal	Trucked Garbage Collection & Disposal
Average vehicle speed between buildings (SB)	10 kmh	10 kmh	10 kmh	10 kmh
Distance between buildings (DB)	30 m	30 m	30 m	30 m
Rate of filling or emptying the vehicle container while servicing the buildings (RB)	180 L/min	340 L/min	0.018 $\frac{m^3}{min}$	0.085 $\frac{m^3}{min}$
Turn-around time while servicing each building - emptying or filling time not included (TTB)	3.0 min	3.0 min	0.25	0.25
Servicing cycle frequency (F)	calculate	calculate	260/yr	52/yr
Vehicle Cost (VC)	$30 500	$22 000	$12 000	$12 000
Vehicle Weight (VW)	4.3 t	4.3 t	2.5 t	2.5 t
Vehicle Economic Life (VEL)	4 yrs	4 yrs	4 yrs	4 yrs
Vehicle Service Factor (VSF)	0.15	0.15	0.30	0.30
Brake horsepower (BHP)	55 kW	55 kW	45 kW	45 kW
Fuel consumption rate per hp hour (FR)	0.24	0.24	0.24	0.24
Miscellaneous operating cost factor (MISC)	0.10	0.10	0.10	0.10
Number of helpers per vehicle - not including driver (NH)	1	1	1	2
Parking garage economic life (PGEL)	10 yrs	10 yrs	10 yrs	10 yrs
Associated building container economic life (ABCEL)	20 yrs	20 yrs	N/A	5 yrs
Residential container cost (CUC) Note: cost for non-residential buildings is not necessarily the same.	$0.40/L (installed)	$0.40/L (installed)	$0.06 per honeybag	$10.00 per container

TABLE C-3. WATER AND SEWAGE VEHICLE AND TANK COSTS [6]*

* 1977 PRICES - F.O.B. "SOUTH"

		WATER					SEWER				
	TANK SIZE	CAB & CHASSIS	INSULATED STEEL TANK	APPURTE-NANCES	TOTAL	WEIGHT	CAB & CHASSIS	NON-INSULATED STEEL TANK	APPURTE-NANCES	TOTAL	WEIGHT
	Litre	$	$	$	$	tons	$	$	$	$	tons
WHEELED 4 x 4	2250	10 000	4 240	8 750	23 000	2.9	10 000	2 900	3 600	16 500	2.9
	4500	13 000	5 750	8 750	27 500	4.3	13 000	3 400	3 600	20 000	4.3
	6800	16 000	7 750	8 750	32 500	5.4	16 000	4 500	3 600	24 100	5.4
	8200*	23 000	8 750	8 750	40 500	7.3	23 000	5 300	3 600	31 900	7.3
TRACKED	2250	27 000	5 250	8 750	41 000	5.4	27 000	5 400	3 600	36 000	5.4
	3400	55 000	6 750	8 750	70 500	8.2	55 000	6 150	3 600	64 750	8.2
	4500**	65 000	8 250	8 750	82 000	9.1	65 000	6 900	3 600	75 500	9.1

* Tandum Axle

** Larger tracked vehicles are generally impracticable.

ADJUSTMENTS TO TABLE D-3 (If Required):

1) For 4 x 2-wheeled vehicle, decrease the cost by $3 000.

2) For a non-insulated steel water tank, decrease the insulated steel tank cost by 45%.

3) For floatation tires (used in snow and poor road conditions), increase the cost by $4 500.

4) For desiel engines, increase the cab and chassis cost by 25%. The fuel consumption rate for desiel engine is 40% less than gasoline at 50 kmh, city driving test.

5) For stainless steel tank with indefinite life, multiply the steel tank cost by 3.0 (not usually used).

TABLE C-4. COST BREAKDOWN FOR 4500-LITRE TRUCK STEEL WATER TANK [6]

COMPONENT	COST*	PERCENTAGE
Tank shell	$ 2 000	13.8
Insulation and outer shell	2 500	17.2
Inside coating	700	4.8
Rear doghouse	1 200	8.3
P.T.O. pump & hydraulic piping	1 200	8.3
Hydraulic and controls	1 600	11.0
Painting	300	2.1
Mounting tank & truck frame	250	1.7
Reel and hose	1 000	6.9
Motor and pump	1 000	6.9
Piping and valves	1 000	6.9
Valve controls	500	3.4
Heating and piping	300	2.1
Wiring and electrical	300	2.1
Miscellaneous	650	4.5
	$14 500	100.0%
SUMMARY		
Non-insulated steel tank	$ 3 250	22.4
Insulation and outer shell	2 500	17.3
Appurtenances	8 750	60.3
	$14 500	100.0%

* F.O.B. Edmonton installed prices (1977) from Brian McKay of Edmonton Truck Body, Edmonton, Alberta.

C.3 Simplified Equations

A number of the parameters outlined in the detailed general equations are either not very significant, are common to most community conditions, or are a function of the equipment. If the typical values presented in Table C-1 are assumed, the truck equations become greatly simplified.

For water delivery:

$$THRS = POP\ (7.95 \times 10^{-2}\ VPCD + 1.02 \times 10^{-2}\ VPCD \times D + 1.37).$$

For sewage pump-out collection:

$$THRS = POP\ (5.57 \times 10^{-2}\ VPCD + 1.02 \times 10^{-2}\ VPCD \times D + 0.98).$$

where: THRS = total number of hours required to service the people or buildings within the defined group (hours),

POP = population, real or equivalent, within the defined group,

VPCD = volume of water consumed or waste generated (litres per person per day),

D = distance to the source or disposal point (kilometres).

These equations can also be used in terms of the number of buildings served (POP) and the total average daily demand per building (VPCD). The number of vehicles required to service the defined group is simply the next largest integer of the total hours from calculations for all buildings serviced, divided by the number of hours a vehicle is available per year, i.e., THRS ÷ 2145. These equations have been used to estimate the vehicle requirements as a function of population, distance and consumption in Figure C-2. Figure C-2(a) can be used to estimate the number of people that can be served by one vehicle or the number of vehicles required to service a given population. Figure C-2(b) indicates the average daily volume of fluid that can be handled by one vehicle.

From these simple equations the effects of changes in the most significant factors can be quickly assessed. Also, the labour costs and the vehicle requirements can be quickly calculated for preliminary estimates.

C.4 References

1. Government of the Northwest Territories, "General Terms of Reference for an Engineering Pre-design Report on Community Water and

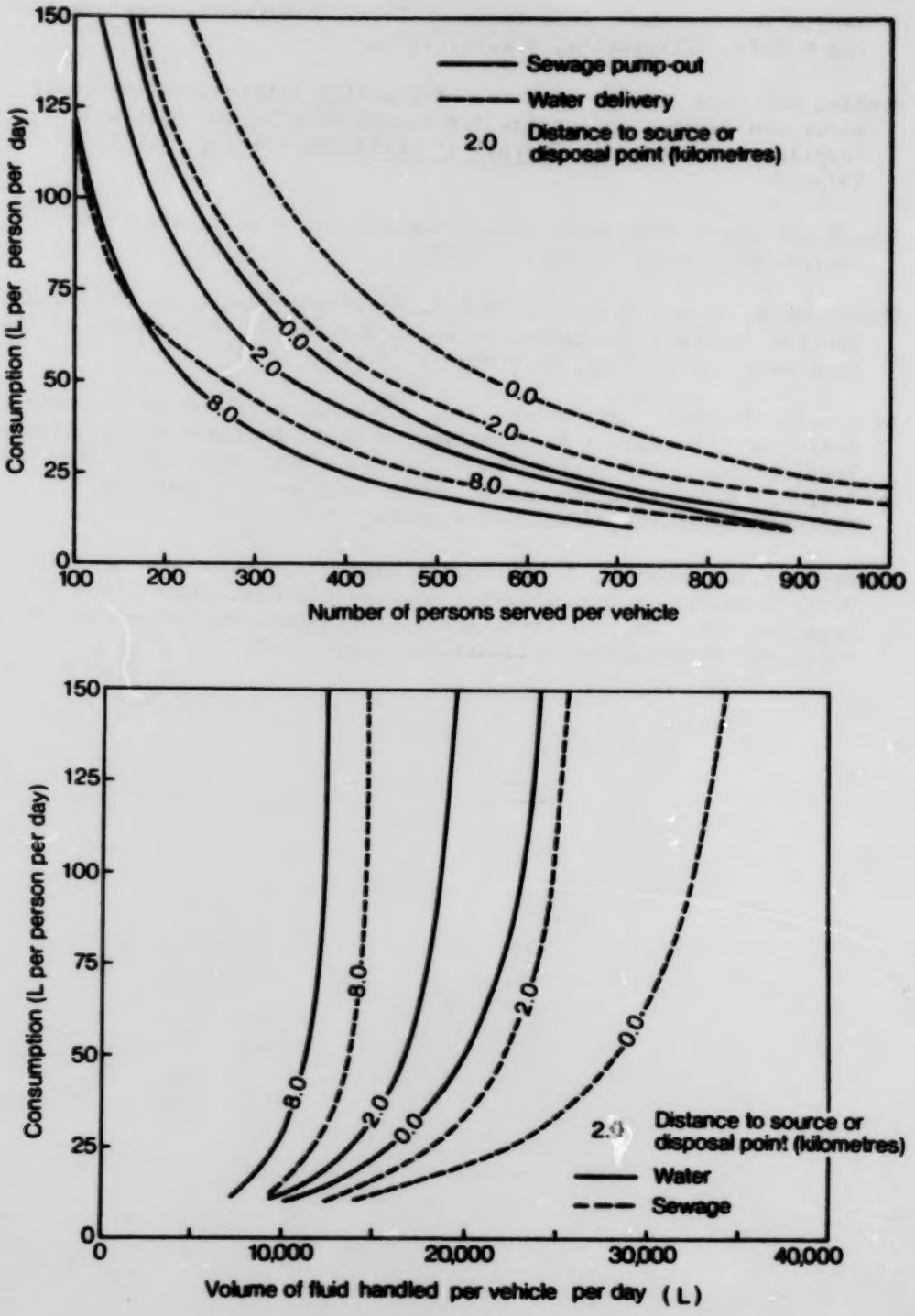


FIGURE C-2. VEHICLE REQUIREMENTS

Sanitation Systems", Department of Local Government, Government of the N.W.T., Yellowknife, N.W.T., 1978.

2. Gamble, D.J. and Janssen, C.T.L., "Evaluating Alternative Levels of Water and Sanitation Service for Communities in the Northwest Territories", Canadian Journal of Civil Engineering, 1(1):116-128, 1974.

3. Canadian Construction Association, "Rental Rates on Construction Equipment", Ottawa, Ontario, 1976.

4. Christensen, V. and Reid, J., "N.W.T. Water and Sanitation Policy and Program Review", Department of Local Government, Government of the Northwest Territories, Yellowknife, N.W.T., 1977.

5. Associated Engineering Services Ltd., "Demonstration of an Economic Analysis of Servicing Alternatives in Small Northern Communities", Prepared for: Dept. of Northern Saskatchewan, Dept. of Indian and Northern Affairs, Environment Canada, and Dept. of Regional Economic Expansion, Edmonton, Alberta, 1978.

6. Armstrong, B., Cameron, J. and Christensen, V., "Water and Sanitation Project Costs - A Consolidation of Historic Cost Information", Prepared for: Department of Local Government, Government of the Northwest Territories, Yellowknife, N.W.T., 1977.

APPENDIX D

RATE STRUCTURES AND PRICING POLICY

APPENDIX D*

RATE STRUCTURES AND PRICING POLICY

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* from: Cameron, J. and Armstrong, B.C. "Water and Energy Conservation Alternatives for the North" Department of Information, Government of the Northwest Territories, Yellowknife, N.W.T.

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D RATE STRUCTURES AND PRICING POLICY

D.1 Water and Sewer Rate Structures

There have been a number of water and sewer pricing schemes that have been used or proposed. They include flat rate, uniform rates, declining block, increasing block, demand rates and peak load rates. The unit price and the total cost to the consumer versus the quantity of water used is illustrated in Figure A-1 (a, b, c and d) for various price schemes. Each has characteristics which make it advantageous and appropriate for various conditions and objectives and each influences water use and conservation differently. A summary assessment of these is presented in Table D-1 from Chan et al (1976).

TABLE D-1 COMPARISON OF VARIOUS RATE STRUCTURES (Chan, et al 1976)

	Revenue Adequacy	Water Conservation	Administrative Simplicity	Distribution Effects	Efficiency
Flate Rate	poor	poor	good	poor	poor
Decreasing Block Rate	fair	poor	fair	fair	fair
Constant Unit Price	good	fair	fair	fair	good
Increasing Block Rate	fair	good	fair	fair	good
Seasonal Rates	good	good	fair	good	good
Hourly Peak Rates	good	good	poor	good	good

Chan et al (1976) constructed a computer model to evaluate the various rate schemes. By utilizing the demand curves from Howe and Linaweaver (1967), and maintaining approximately the same annual cost to the consumer and sufficient revenue to the utility company to construct and operate the system they were able to isolate and quantify the influence of rate structure on various criteria including water conservation effectiveness. The results summarized in Table D-1indicate the water demands relative to the flat rate alternative for three levels of price

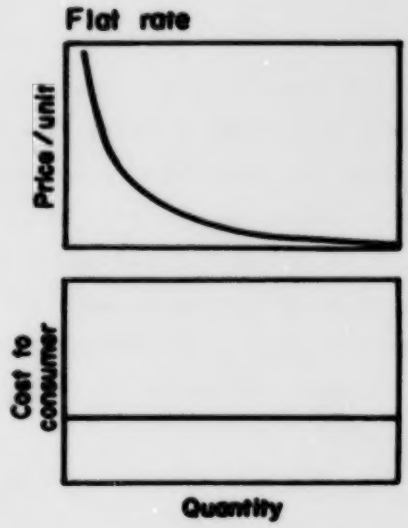

FIGURE D-1(a).

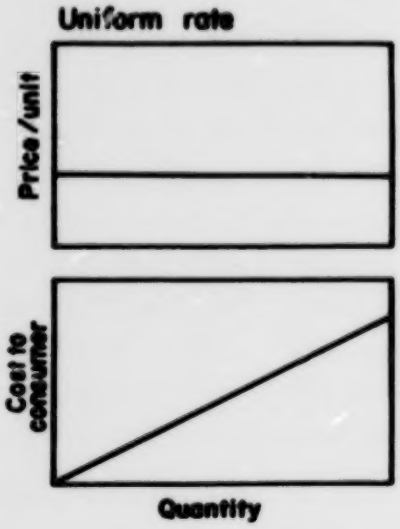

FIGURE D-1(b).

FIGURED -1(c).

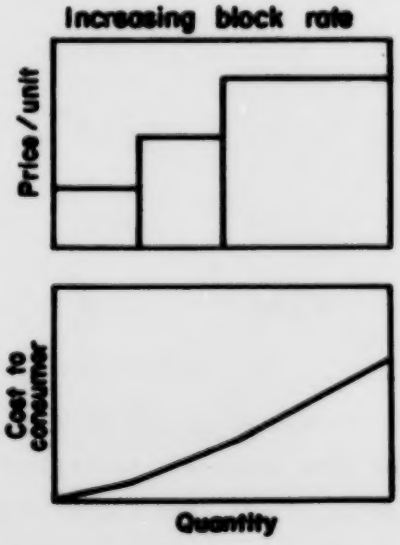

FIGURE D-1(d).

FIGURE D-1(a,b,c & d). WATER PRICE RATE STRUCTURES

for utility systems with decreasing, increasing and average cost functions. The cost of the last unit of demand, the marginal price, is also indicated. It can be seen that for a typical household all of the unity price rate structures have lower demands than the flat rate and at the low, medium and high rates the demand is progressively lower. At each price level the unit price rate structures have different demands. For example, at the medium rate the increasing, uniform and decreasing rates have demands of 44%, 48% and 54% of the flat rate demand which is 2120 L/d. However, at the same marginal price the demand is the same, regardless of the rate structure. That is to say, the rate structure itself is only significant to the extent that it establishes the marginal price. This is shown for utility systems with decreasing and increasing cost functions.

TABLE D-2 WATER DEMAND FOR VARIOUS RATE STRUCTURES (Chan, et al, 1976)

Price Level	Increasing Block Rate	Uniform Rate	Decreasing Block Rate	Flat Rate	
	% of flat rate (marginal price)	% of flat rate (marginal price)	% of flat rate (marginal price)	% (rate)	Litres/day household
Decreasing Average Cost Function					
Low Rate (1)	60% ($0.09/1000 L)	63% ($0.08/1000 L)	67% ($0.06/1000 L)	100% ($3.00/month)	2120
Medium Rate	44% ($0.18/1000 L)	48% ($0.16/1000 L)	54% ($0.12/1000 L)	100% ($6.00/month)	2120
High Rate (2)	33% ($0.27/1000 L)	38% ($0.24/1000 L)	45% ($0.18/1000 L)	100% ($9.00/month)	2120
Increasing Average Cost Function					
Low Rate (1)	65%	68%	74%	100%	1800
Medium Rate	49%	52%	59%	100%	1800
High Rate (2)	37%	42%	50%	100%	1800

(1) 50% of Medium Rate

(2) 150% of Medium Rate

It is apparent that consumption can therefore be manipulated with any of the unit cost rate structures by adjusting the price. Because of the many assumptions in this model, these results should be interpreted with some caution. Also, various rates may be more appropriate

and effective in different situations regardless of the total revenue collected. For example, if there is a limited quantity of water available, a very steep increasing unit price may be essential to limit consumption regardless of the actual cost of water.

A.1.1 Flat Rate. A flat charge, independent of water use is levied. This fixed charge may vary for residential, commercial or industrial users or may be determined by the size of the service connection. The advantage of the fixed charge is that it avoids metering costs and is simple to administer. The disadvantages include the high water use. Since the consumer receives no feedback as to actual cost of service, there is therefore, no incentive to avoid waste or reduce consumption. Non-essential uses such as lawn watering, bleeding to prevent service lines from freezing, and water loss through breaks, leaky faucets, and toilets are particularly high where flat rates are used.

Grima (1972) reported a 50% increase in water use in unmetered, flat rate houses in Toronto. Gysi and Lamb (1977) indicated that consumption even during the winter was double for similar houses and conditions in Calgary where a flat rate is charged compared to Edmonton where a unit price scheme is used. Linaweaver et al, (1967) indicate that climate and lawn watering were the most important factors in high water usage in unmetered houses. These uses increase the total water requirements but often are relatively more significant because they substantially increase the peak demand for which the utility system must be designed to meet. Generally, water use can be reduced by over 50% if metering and a flow based charge is used.

Flat rates should not be used where economic efficiency and equitable cost distribution are the basic goals. In some cases, the cost of measuring water use and billing may be sufficiently large to make flat rates attractive.

A.1.2 Uniform Rate. A constant unit price for water is levied regardless of consumption. Metering is necessary but the simplicity results in easy administration. Water conservation is encouraged since consumers pay for what they use but water use will depend on the price level. The low water user is not discriminated against since charges

are proportional to service received. Revenue also increases directly proportional to demand, therefore, uniform rates are appropriate where the cost of providing water and sewer service increase in proportion to the volume of water consumed. This is the case for truck systems for which the fixed costs are only about 25% of the total cost. Piped systems generally have declining unit costs due to the high initial or fixed costs; however, long term requirements and costs must be considered. A review of water rate structures in California by Reiter (1977) indicated that utility companies were beginning to realize that no real economic savings are achieved by encouraging large consumption and uniform rates were becoming more common.

A.1.3 Declining Block. A specific amount or unit price is charged for a certain volume (block) of water with the applicable price declining with each successive block. The first block of water is sometimes termed a minimum service charge. Since lower rates are charged for each additional block or portion consumed, the consumer's average unit cost decreases with increasing consumption. The declining block rate is by far the most widely used price structure, 94% of the cities reported in a 1965 study (Anon., 1965). The reason for this popularity is the general assumption that piped utility systems experience a declining average cost both with improvements and system expansion. These "economy of scale" savings are passed on to the consumers who is only charged an incremental rate high enough to cover the incremental cost his demand imposes on the system. If the system has excess capacity then the extra cost for higher demands is small and, therefore, a declining rate is used. In some cases, such as small communities or subdivisions designed for fire protection, the whole system or just some components may never require expansion and there is always excess capacity. However, where system expansion increases, the average or peak load requirements which precipitates the need for expansion, then declining block rates may not be appropriate. In some cases, higher demands may improve the loading and utilization factors of components such as treatment plants, thereby creating a declining unit cost function.

With a declining block, the consumers total water bill will increase with higher demand but at a decreasing rate. In other words the more water you use the less it costs per litre. Thus, water conservation is discouraged since the savings are determined at the lowest unit rate. This method may not be equitable since the lower water users who pay a higher unit cost may be subsidizing the lower unit rates of the higher users. Price levels can be adjusted to return sufficient revenue to the utility system operators. Theoretically this scheme can be tailored to the actual cost of providing service; however, this is impossible to do completely equitably since individual service costs for total volume and peak demands and social costs can not be precisely established.

A.1.4 Increasing Block. The price for each successive block of water demand increases. Both the average and the incremental unit cost and the total cost of water and/or sewage service to the consumer increases with increasing demand. Therefore, water conservation is promoted and rewarded. This scheme is appropriate where increased utilization rates and/or capacity expansion cause the unit or average costs to increase. It has also been used during the recent drought in California when limited water supplies necessitated reduction and limitations on total consumption (Consumer Reports, 1978). This was done as a form of social penalty rather than to return revenue to the utility system operators.

This scheme results in the greatest amount of water conservation. It also automatically yields a higher price if demand increases due to lawn watering and other uses. Since the consumer faces higher prices demand increases are modified and demands, particularly peak demands, on the system are reduced.

This rate structure is adequate at returning revenue. Switching to such a scheme would require a stabilization period during which large users would reduce consumption or provide their own service.

A.1.5 Peak Load and Seasonal Rates. The unit price is varied to reflect and provide revenue to pay for the required high system capacity to meet periodic high demands. These schemes recognize that for many utility systems it is the peak demands that determines the capacity requirements and thus capital expenditures of much of the utility (Clark

et al, 1971) and attempts to reduce the peak demands may be more cost effective than supplying the facilities to meet them (Russell, 1976). Gysi (1971) reported that the water facilities required to meet the last 12% of a community's summer demand almost doubles the capital costs. Peak load rates attempt to allocate these higher capacity costs to those consumers who are responsible for the peak demands and higher expenditures. Also, by raising the price, the demand on the system is reduced. Peak loads which significantly increase the design capacity and/or operating costs may result from seasonal variations, such as for lawn watering during the summer, daily fluctuations, or the operating characterisitics of particular consumers, such as a seasonal fish processing plant or a school with a demand that is much higher than the rest of a small community. Peak load prices are higher, thus, water conservation and equitable distribution of costs is facilitated. Alternatively, a lower price may be charged for water that is used during off-peak periods. This would improve the loading and utilization factors of components such as storage, pumps and treatment plants which must be sized to meet the peak demands. The objective is to even out the demand on a daily or annual basis by increasing the minimum demand and thus reduce overall costs.

Demand rates are related to the time of use whereas peak load rates are usually determined by hourly peaks. Either can be used in conjunction with other price structures. They are adequate at returning revenue to the utility operators. Furthermore, they are flexible and potentially the most equitable in cost distribution, and they can promote water conservation. However, these rates are difficult to establish and administer and an economical meter to handle such a pricing scheme is not available for residential applications.

Seasonal rate structures may be appropriate where the utility system experiences significant capacity and/or operating cost difference during certain seasons. Northern utility systems which have high heating and other operating costs during the winter or with more expensive or limited water sources at certain periods, may consider seasonal rates for more equitably distributed costs or to reduce consumption. Often seasonal rates are applied to the summer months when peak demands for lawn watering and other outdoor uses are high and strain the system.

Seasonal pricing can be incorporated as a modification of any of the other basic pricing schemes. Standard meters can be utilized and administration costs are not increased significantly.

A.1.6 Fire Protection Charges. The cost of facilities and excess capacity within a utility system to provide fire fighting capability, which is beyond consumption demands, are charged directly to those who benefit from this protection. These costs are primarily related to the storage capacity and size of water mains. The fire protection requirements usually establish the minimum sizes or system capacities; therefore, they are more significant and often dominate the design of water systems within subdivisions and for small communities.

The use of revenue from water bills to obtain the funds necessary to provide fire fighting capabilities is clearly not equitable and distorts the price for water. In some cases a charge is levied based on the proximity of a fire hydrant or there may be a higher water rate for high density residential or commercial areas, or industrial property with high fire flow requirements. Alternatively, this cost can be collected from property taxes which are adjusted to reflect the higher value of lands with fire protection. Whatever the methods used, a separate fire protection charge allows the consumer to identify the cost of this service and to compare it to their benefits (Reiter, 1977). The difficulty in utilizing separate billing is in identifying and establishing the portions of utility system costs which are attributable to the water consumption and fire protection functions.

A.1.7 Social Pricing. A subsidized rate is charged for an established minimum volume of water. The assumption is that water is an essential commodity that should be readily available to all persons regardless of their ability to pay. In addition, there are associated economic benefits to the nation in terms of reduced public health costs, increased productivity, and intangible benefits that are predicated on a healthy population and sanitary living environment. There are numerous problems in determining and administering these "lifeline rates" and ensuring that the goals are attained without subsidizing the affluent.

A critical issue is how to obtain the lost revenue for subsidized service. Other consumers on the utility system could absorb the cost by

way of higher prices but this may not be equitable. Alternatively, the responsible government agency could issue "water stamps" or provide for payment of utility bills directly or to provide the necessary funds to the individual as part of welfare payments. The framework for the latter method is already in place and has been utilized. Household water consumption should not be greatly affected depending on the quantity that is established as the subsidized minimum and the method of subsidy.

A.2 Pricing Policy

The primary function of a rate structure and price for water is to recover the capital and operating expenditures for the water supply and distribution and for the wastewater collection and disposal system. Ideally, the rates should be equitable such that costs resulting from various user demands on the utility system are allocated and recovered in proportion to services received. Other indirect issues often enter into the picture in setting pricing policy. For example, the social objectives may include a subsidy to certain users, such as to attract new industry in the hopes of overall economic benefits to the community or the provision of a minimum level of water and sewage service at no charge or at a nominal charge to promote good public health. The social and economic objectives of the community, senior governments and the utility system operators are interwoven to arrive at cost sharing policies and an easily administered, practical rate structure. The price may reflect these political, social and administrative objectives; however, it should also encourage efficiency and cost-effectiveness of total expenditures, both public and private.

The principles and objectives of a pricing policy may include:

1) to provide revenue to recover expenditures;
2) to provide funds for future expansion;
3) to provide revenue to reduce municipal taxes;
4) to distribute costs equitably amongst consumers;
5) to avoid undue discrimination;
6) to be practical, stable and easily administered;
7) to be easily understood and acceptable to customers;
8) to subsidize particular users;

9) to subsidize a minimum level of service;
10) to manipulate demand to minimize costs; and
11) to discourage waste and inefficiency.

In practice, the selection of a price and rate structure is based on equity, expediency, and economics. Because the pricing policy must be designed for multiple criteria, it will involve compromise among sometimes conflicting criteria or goals.

Most water and sewer services are provided by a government agency or a community or public utility. The services are operated as a monopoly and regulated for the public good, usually by a public utilities commission. Utility service is not a normal free market commodity. Water, at least a small amount, is an essential commodity and the willingness to pay is not a factor in determining the price. The charge is for the processing, distribution and collection. The raw material itself is essentially free and usually available, though perhaps at higher procurement costs, in adequate quantities. There is no profit motivation since the service is provided at cost and to all within the designated boundaries of the utility agency.

The revenue obtained from customers should equal the total costs for the system. To recover only costs and to do so equitably, the price at a particular capacity or demand should reflect and follow the particular cost function of that utility system. The cost structure of piped municipal water and sewer systems is typically a high capital expenditure with relatively modest annual operating and maintenance costs. As demand increases, periodic increases in the capacity are required. Sometimes changes in the water source, disposal point, method or level of treatment or other system components may also be necessary due to increases in the demand or environmental requirements. Capacity increases are in descreet quantities, and within each increment the average cost declines until the maximum capacity is reached. Hypothetical short term cost functions are illustrated in Figure A-2.

The long term average costs may be increasing or decreasing depending on local conditions. Increasing cost functions may be due to the development of less accessible water sources, poorer quality water, providing service to more distant or difficult areas, increasing peak

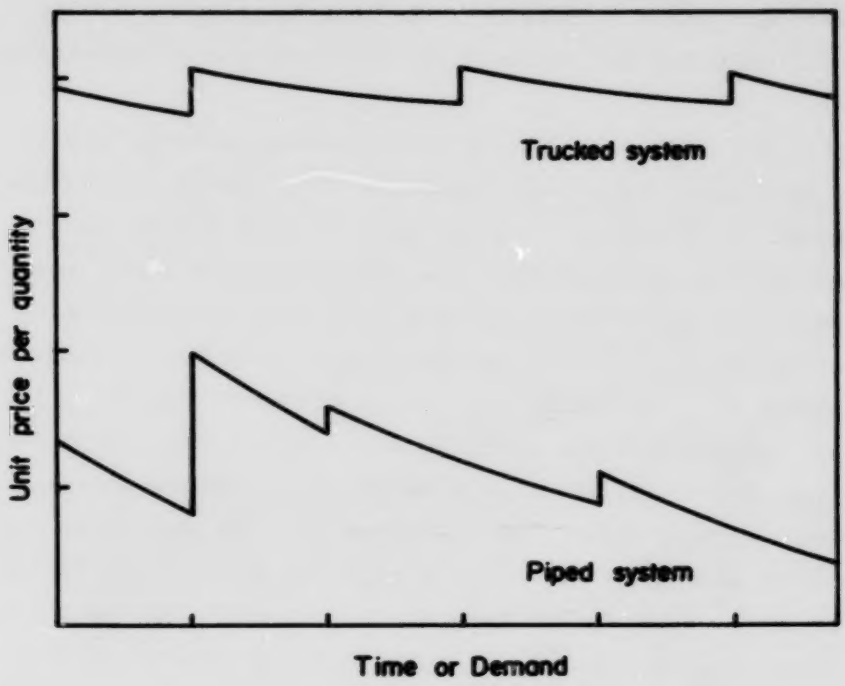

FIGURE D-2. HYPOTHETICAL SHORT RUN UNIT COST CURVES FOR TRUCKED AND PIPED SYSTEMS

demands or other factors. Decreasing cost functions are usually due to economics of scale. The average unit capital cost of most, if not all, utility system components is lower for larger capacity systems. The actual installed capacity is usually for some future demand and the appropriate or most economic design capacity can be optimized depending on the economy of scale, probability of demand, interest rate, and other factors (Meier, 1977). The most significant variables in design capacity and therefore capital costs of piped distribution systems and local storage are usually the maximum daily demands plus the fire flow. The expenditure to develop a water supply is linked to the annual or average daily demand and the expenditures for water supply, sewer outfall and trunk mains, treatment systems and pumping facilities are linked to the maximum daily demand (Howe and Linaweaver, 1967). Truck systems typically have low capital costs, short life and significant operating costs,

primarily labour. There is little or no economy of scale or overcapacity within the delivery system. Therefore, the cost function is usually quite different than that for conventional piped systems as illustrated by Figure A-2.

Obtaining sufficient revenue can be easily achieved through the various rate structures. For example, a fixed charge per customer, or a price based on the average cost per unit of water can be used; however, these may not be equitable. The distribution of costs among various services and users causes the most difficulty in establishing rate structures. As indicated above, the capacity costs for standby and peak requirements are significant and often a minimum charge is levied on consumers, regardless of the amount of water used. This can be done by a higher rate for the first units of water use, a minimum charge which includes a certain volume, or a separate bill for this fixed cost. The last units of demand for water may precipitate the need for increased storage or treatment capacity and the resulting expenditures can not usually be attributed or allocated to a particular individual or group. Given that the total cost of servicing specific consumers cannot be determined, some price discrimination is unavoidable (Mann, 1977). Knowing the general form of the cost function will assist in establishing a rate structure policy but much more effort may be required to translate this into an actual pricing policy and price levels. Given that the capital and operating cost structure, both short and long term, of a utility system cannot usually be precisely determined, some inefficiency is unavoidable.

With these social, political and technical constraints, it is no wonder that "the procedures for designing water rates have generally been on trial and error assumptions applied to the sales records of the particular community" (American Water Works Association, 1954). Studies of price and rate structures even within the same region indicate that they are rarely based on logic and comparisons are virtually impossible (Argo, 1962; Reiter, 1977). Often the only criteria they meet is the collection of sufficient revenue to meet expenditures.

A.2.1 Marginal Cost Pricing. The non-economic criteria that may influence pricing policies should not deter economic analyses. Grima (1972) and Chan et al (1976) present detailed economic analysis for utility systems with increasing and decreasing average cost functions. They agree that the water rate schedule should reflect the marginal cost curve such that the price at a particular demand should equal the cost of supplying or satisfying that demand. In classical economic theory for a free market commodity, the resource is efficiently allocated when the price is set equal to the marginal cost of production. Although somewhat distorted, this is also applicable to utility systems (Hirshleifer, DeHaven, and Milliman, 1960). Marginal pricing allows the consumers to satisfy their demand at a price that reflects the costs incurred to provide that service. Conversely, the total or individual savings afforded by conservation reflect the actual savings therefore efficiency is facilitated.

Until physical facilities are fully utilized, the marginal costs of additional demand are only the variable costs such as power, labour and chemicals. Once the existing facilities are at capacity, further demands necessitate discreet additional capital expenditures. Changing prices with each capacity expansion would be confusing to the customers and difficult to administer, particularly for small systems or where large variations in total annual costs are experienced. Therefore, the long term marginal cost should be utilized in determining the marginal price. This may result in an excess of revenue being collected where long term average costs are declining (Grima, 1972).

A literal interpretation of marginal pricing is not always necessary or even correct or desirable. Such economic models do not always precisely predict the free market forces and are further distorted when it comes to a commodity such as water. Also, consumers do not always act rationally, at least in economic terms. However, such a goal is commendable and is probably better than other pricing policies such as flat rate charges or a single average cost price which may have no economic basis and will discourage efficiency.

As a goal, therefore, the pricing policy should lean towards the long term marginal total cost of running the utility system, and the unit price should follow the average cost function of that particular system. For example, where average costs are decreasing, so will the marginal cost and so should the marginal price. Any of the flow volume based rate structure can lead to economically efficient outcomes by designing them such that the prices at the margin are equal to the incremental cost (Chan et al, 1976).

A.2.2 Subsidies. Often subsidies are incorporated into the capital or operating costs and this is reflected in the price charged for water and sewage service if only the utility operators costs are recovered. Subsidies may be used to facilitate the overall social, political or economic goals of the federal, territorial, provincial or municipal government or private industry, such as in company towns. These goals may include the promotion of good public health, reduction of pollution, redistribution of wealth and industry, to attract employees, and many others.

Subsidies may take many forms, depending upon the goals and mandate of the agency involved. Capital grants are sometimes provided for all or portions of specific facilities such as trunk mains and treatment systems or they may be general grants for capital and operating costs. Low interest guaranteed loans are often available to incorporated municipalities while utility systems for small communities in the north may be largely supplied and operated by government personnel. Operating costs are also sometimes subject to various forms of subsidies such as through grants or operating assistance. Direct subsidies to consumers may take the form of price reductions to particular users, such as new industries, or a nominal or no charge for a minimum level of water and sewer service. The former are usually initiated by the municipality while the latter may be senior government agencies who are responsible for health and sanitation improvements. Welfare recipients and persons on fixed income may also receive cash subsidies directly or through free or low priced service. These various types of subsidies, plus others are not mutually exclusive and are often present within the same utility system.

The Federal government has many subsidy schemes that affect water and sewer systems. The provinces also have cost sharing and grant policies and programs, The Northwest Territories Water and Sanitation Policy, which includes capital and operating subsidies to incorporated municipalites and communities, was outlined by Cameron, Christensen and Gamble (1977). A study of municipal services in the NWT warned of the possible inefficiencies resulting from the generous capital grants available to the municipalities (White, 1976).

The heavy involvement of government in small northern communities and Indian reserves often resulted in water and sanitation services being supplied at a nominal charge. There was of course no "money tree" and the same resources are required to install and operate utility systems regardless of the revenue recovered. Subsidies in municipal services were hopefully, justified by their overall cost effectiveness due to benefits to society. There was, however, a danger that they could lead to inefficiency. For example, a direct or indirect subsidy that results in a lower than economic unit price encourages an "artificial" higher demand and sometimes outright abuse. This high demand sooner or later necessitates undue operating and capacity expansion costs, which may be paid for with further subsidies.

This does not mean that all subsidies should be dropped. However, they should be subjected to economic analysis to ensure that their implementation in cost does effectively achieve set goals and at the same time does not induce inefficiencies in other systems. It is suggested that this may be achieved by utilizing a marginal pricing policy. The price for the last unit of demand should not be subsidized and the total incremental capital and operating costs should be recovered. Minimum demands could be subsidized directly by corporate or personnel welfare type payments or indirectly through prices that do not recover the grants, loans, or other resource committments by government. The unit price charged could be a varying percentage of the unsubsidized price, decreasing to nil at an established normal demand or in proportion to the consumers actual demand. A free initial quantity can also induce waste and inefficiency up to that quantity. Therefore, either a percentage

of the unit cost, however small, based on the quantity used within that initial volume should be charged or else the level should be sufficiently low to ensure negligible inefficiency.

APPENDIX E

EXAMPLE ADMINISTRATION FORMS

APPLICATION FOR TRUCKED MUNICIPAL SERVICES

IDENTIFICATION

Name _____ (Surname)

Mailing Address _____

_____

Telephone _____

BUILDING LOCATION

Legal LTO #____ Block #____ Lot#____

Street _____

_____

SERVICES DESIRED

- ☐ Water Delivery
- ☐ Sewage pump-out
- ☐ Honeybag/Bucket sewage
- ☐ Garbage

DATE SERVICES ARE DESIRED

_____

_____

_____

_____

TYPE OF BUILDING

- ☐ Residential
- ☐ Commercial
- ☐ Other (specify) _____

or

- ☐ New service for building
- ☐ Continuation of service

BUILDING DATA

Water tank capacity _____

Sewage tank capacity _____ or

- ☐ Cubic Meters
- ☐ Imperial Gallons

_____ Date

_____ Signature of Applicant

FOR OFFICIAL USE

- ☐ Applicant is within approved service area
- ☐ Building conforms to Municipal By-Laws
- ☐ Building conforms to Health standards.

APPLICATION APPROVED BY:

_____ Date Municipal Inspector

_____ Date Municipal Administrator

FURTHER INFORMATION:

CUSTOMER LISTING FOR TRUCKED SERVICES Page _____

CUSTOMER NAME	STREET ADDRESS	LEGAL ADDRESS LTO, BLOCK, LOT	PHONE	SERVICES			
				WD	SP	SB	G

WD=Water Delivery; SP=Sewage Pumpout; SB=Sewage Bagged/Bucket; G=Garbage

SERVICE SCHEDULE

SERVICE TYPE _____ EFFECTIVE DATE _____

SCHEDULE DAY(S) _____ SCHEDULE NO. _____

STREET	BUILDING NO.	LEGAL LTO, BLOCK, LOT	NAME OF CUSTOMER

CUSTOMER ACCOUNT CARD

ACCOUNT NO. _____

NAME _____ ACCOUNT NO. _____

MAILING ADDRESS _____

_____

LEGAL: LTO_____ BLOCK_____ LOT_____

STREET _____

TEL. NO. _____

	DATE	CHARGES		CHARGES	PAYMENT RECEIVED	BALANCE
		INV. NO.	SC			
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

NOTES: UB=Utility Bill; P=Penalty

UTILITY BILL				INVOICE NO.
ACCOUNT NO.	SERVICE ADDRESS			
BILLING DATE	PREVIOUS BILL	AMOUNT PAID	PENALTY	BALANCE FORWARD

SERVICE CODE		CODE	QUANTITY	UNITS	NEW CHARGES
WM - WATER METER	AJ - ADJUSTMENTS				
WD - WATER DELIVERED	MD - MISC. CHG.				
S - SEWAGE	MC - MISC. CR.				
SP - SEWAGE PUMPOUT	E - ESTIMATE				
SB - SEWAGE BAGGED	A - ACTUAL				
G - GARBAGE	S - SERVICE CHG.				
L - LITRES	Q - SERVICES		SUB-TOTAL		
+			+		AMOUNT NOW DUE
+			+		

PLEASE RETURN YELLOW COPY WITH PAYMENT

INTEREST CHARGE INFORMATION

THERE IS NO INTEREST CHARGE WHEN PAYMENT IS RECEIVED IN OUR ACCOUNTING OFFICE WITHIN THIRTY (30) DAYS OF THE "BILLING DATE" SHOWN.

AN INTEREST CHARGE OF 1.5% PER MONTH (being 19.56% per annum compounded monthly) IS APPLIED TO ALL "BALANCE FORWARD" AMOUNTS.

PAYMENT

ACCOUNTS MAY BE PAID IN PERSON OR BY MAIL TO:

MAKE CHEQUES AND MONEY ORDERS PAYABLE TO:

PLEASE RETURN YELLOW COPY WITH PAYMENT

OFFICIAL RECEIPT

NO. _____

RECEIVED FROM _____

ACCOUNT NO. _____ SERVICE LOCATION _____

DATE	DESCRIPTION/ SERVICE CODE	AMOUNT PAID

PAID BY: ☐ CASH ☐ CHEQUE ☐ _____

_____
AUTHORIZED SIGNATURE

TERMINATION OF SERVICE NOTICE

AS OF THE "BILLING DATE" WE HAVE NOT RECEIVED PAYMENT ON YOUR UTILITY BILL. FULL PAYMENT MUST BE RECEIVED AT OUR ACCOUNTS OFFICE, CITY HALL, BY _____ OR SERVICE WILL BE TERMINATED ON _____

IF YOU HAVE MADE PAYMENT, PLEASE DISREGARD THIS NOTICE.

APPENDIX F

EXAMPLE OF TRUCKED SERVICES

TENDER DOCUMENTS

NOTES ON PREPARING TENDER DOCUMENTS USING THIS EXAMPLE

1. General

This Appendix contains an example of a complete Tender Document. Hopefully, this will assist you in preparing Tender Documents for your Municipal trucked service contracts. This example can be used for water delivery, sewage pumpout, bagged/bucket sewage and garbage collection service. It is made up to include all or any of these services. There are financial, management, legal, responsibility and other options provided. These options are necessary to make the example useful to a wide variety of users and uses. This flexibility does make the example a bit long and detailed but once you extract only the items that you want and need within your contract, you will end up with a much smaller document.

2. How to Use This Example

Before you start into preparing the Tender Documents for a service contract, it is imperative that you read Section 5 of this Guidelines, "Preparation of Truck Service Contracts". Information in that Section includes a description of the "Parts of a Tender Document" and instructions on "How to Prepare Tender Documents".

There is no best sequence of preparation. A suggested method is as follows:

(1) Quickly review the whole Example.
(2) Consider the detailed description of the work and performance (the Specifications).
(3) Consider the method of payment and tender (the Schedule of Prices).
(4) Consider the general instructions (the Instructions to Bidders and the Invitation to Tender).
(5) Consider the legal framework (the General Conditions and the Articles of Agreement).

3. Format For This Example

This Example is organized following a pattern common to Tender Documents for construction contracts. This method separates the items common to most contracts (the General Conditions) from the items that may be specific to each contract (the Specifications). Other items are separated out so they can be easily located (e.g. Schedule of Price). Another characteristic of this format is that the actual signed contract (the Articles of Agreement) is very short. The contract contains a list of documents that are made a part of the contract and the signatures.

4. Terms Used in This Example

Throughout this Example the term "Municipality" has been used. This term is defined as the Municipality that is named in the contract (i.e. the Articles of Agreement) so you do not have to change it, to for example "The City of Yellowknife", every time it is used in the Example. Some other terms are defined at the start of the General Conditions.

5. Assistance in Using This Example

To assist you in understanding and using the Example, Notes, Blanks and Options have been provided.

General information notes are provided at the start of each Section, such as this note. Notes are also provided whenever an explanation is appropriate. The Notes are always typed inside a box as follows:

This is an example Note. They are not to be included in your final Tender Document.

Blank spaces are to be filled in by you. They are used for such things as dates, quantities, the name of your Municipality and other items. The item to be filled in is often indicated below a solid line. An example is as follows:

"The contract shall commence on _____, 19____." **
[day,month] **[year]**

Your attention is called to the Blanks by the solid line, the highlighted instructions and the stars (***) in the right hand margin, neither of which is to be included in your final Tender Document.

Options are provided when you must select the method or wording. An example is as follows:

"The **[A: Contractor] [B: Municipality]** shall supply..."

In this case you scratch out the option, A or B, that you do not want.

6. Colour Coding of Tender Documents

Parts of the Tender Documents are often printed on coloured paper. This makes for easy identification. There is no standard colour coding so you may select your own.

NOTES ON INTRODUCTORY PAGES

1. General

The first pages of the Tender Documents consist of the following:

(1) A document cover and cover page which identifies the Tender Documents.
(2) An "Index to Tender Documents".
(3) A copy of the "Invitation to Tender".

2. Invitation to Tender

This Example is one form of a notice to advertise the call for tenders. Your Municipality may already have a standard format for this Invitation. The example contains a specific reference to a tender deposit. It is up to you to decide if you will require one or not.

_____ of _____ **
[status] [community name]

NORTHWEST TERRITORIES

TENDER DOCUMENTS AND SPECIFICATIONS

FOR

MUNICIPAL SERVICES CONTRACT NO._____ **

Include a contract title that will indicated the services that are to be performed under this contract.

[A: TRUCKED WATER DELIVERY;] **
[B: COLLECTION AND DISPOSAL OF PUMPOUT SEWAGE;] **
[C: COLLECTION AND DISPOSAL OF HONEYBAG/BUCKET SEWAGE;] **
[D: COLLECTION AND DISPOSAL OF GARBAGE;] **
[E: _____] **

_____ **
[date, month and year]

INDEX TO TENDER DOCUMENTS

			No. of Pages
A	INSTRUCTIONS TO BIDDERS		**
B	TENDER FORM, SCHEDULE OF PRICES, BID BOND and AGREEMENT TO BOND		**
C	ARTICLES OF AGREEMENT and CONTRACT PERFORMANCE BOND		**
D	GENERAL CONDITIONS		**
E	SPECIFICATIONS		**
	DIVISION 1	GENERAL REQUIREMENTS	**
	DIVISION 2	DELIVERY OF WATER	**
	DIVISION 3	COLLECTION AND DISPOSAL OF PUMPOUT SEWAGE	**
	DIVISION 4	COLLECTION AND DISPOSAL OF BAGGED/BUCKET SEWAGE	**
	DIVISION 5	COLLECTION AND DISPOSAL OF GARBAGE	**
F	INFORMATION ON BUILDING UNITS		**
G	PLANS AND FIGURES		**

When you have completed the Tender Documents make any changes to this INDEX that are necessary and add the number of pages that are in each Section.

INVITATION TO TENDER

_____ OF _____
[status] [community name]

Tenders are invited for the provision of trucked _____

_____
[title or brief description of the operation]

for the period of _____, 19___ to _____ 19___.
[commencement] [completion]

Tender documents may be examined and obtained from the undersigned.

Include one of the following tender deposit notices.

[A: A tender deposit is not required.
[B: Tenders must be accompanied by the specified tender deposit.

Sealed tenders marked "Tender for: _____"
[title or contract number]

will be received by the undersigned up to _____ local time,
[time]

_____
[day, month, date, year.]

The lowest or any tender will not necessarily be accepted.

[person authorizing tender and address]
_____

_____

37 33

SECTION A

INSTRUCTIONS TO BIDDERS

NOTES ON SECTION A

1. General

The Information for Bidders contains general information, instructions to assist the bidder submitting a Tender and highlights certain aspects of the contract.

2. Tender Deposit (A.5)

A tender deposit is meant to protect the Municipality should the bidder fail to enter into a contract. It is only appropriate when the Municipality would experience real costs, such as the cost to re-award the contract and the increased cost for the new contract.

A tender deposit is usually only necessary for large contracts. In this Example, a tender deposit is required for tenders of over $100,000. If you do not want to require any tender deposits, you can state this in the Invitation to Tender.

A tender deposit can be a Bid Bond or a Certified Cheque. It is quite difficult to get Bonding in the North so most contractors will probably submit a certified cheque. Other securities are sometimes accepted.

3. Contract Security (A.6)

Contract Security is meant to provide the Municipality with financial security that the Contractor will carry out his obligations. The need for security depends on the consequences of the failure or inability of the contractor to fulfill the contractual obligations.

This notice is just a reminder to the bidder. If you do not require any contract security you must change the Example.

4. Adjustments (A.8)

In this Example, telegraphic notice of adjustments are accepted. Traditionally this has not been allowed due to the lack of security and confidentiality.

5. Options

You should include a reminder and instructions if the bidder is allowed to submit bids on alternatives or options. For example, the bidder may be allowed to bid on providing water and/or sewage service or he may be allowed to use Municipal equipment or to supply his own. Options confuse the evaluation of tenders and are discouraged.

SECTION A

INSTRUCTIONS TO BIDDERS

A.1 GENERAL

The Bidder will be required to enter into a formal Contract with the Municipality of the _____ of _____, ** Northwest Territories, in the format indicated in the Articles of Agreement. The Tender Documents and Specifications will form part of that Contract. The Bidder shall be deemed to have acquainted himself fully with the conditions thereof before bidding.

[status] [community name]

A.2 SUBMISSION OF TENDERS

Envelopes containing tenders are to be sealed and marked and addressed:

Tender for: _____

[name of project or Contract Number] **

_____

[person or department] **

_____

[address] **

_____

Tenders must be received on or before the exact time and date fixed for their reception.

A.3 FORM OF SUBMISSION

Tenders are to be on the Tender Form provided. No substitutes will be considered. The Tender shall be filled in where indicated with the prices or other information for the respective Tender items and signed by the Bidder or an authorized representative of the Bidder, with his business address and/or place of residence clearly indicated.

All blanks must be legibly and properly filled in on the printed Tender Form (Section B) supplied for that purpose. Tenders which are incomplete, conditional or obscure or tenders which contain additions not called for, erasures, alterations, or irregularities of any kind, may be rejected as informal. Should any uncertainty arise as to the proper manner of doing so, the requisite information will, upon request, be given by the Municipality.

A.4 SUBCONTRACTORS

The Bidder must submit, where and when requested in the Tender Form, the names of all subcontractors he proposes to employ on the work. Subcontractors may not be changed and additional subcontractors may not be employed without the written consent of the Municipality.

A.5 TENDER DEPOSIT

Unless the Invitation to Tender advertisement states that a tender deposit is not required each Tender for the sum of $100,000 and over must be accompanied by a tender deposit in the form of a Certified Cheque or Bid Bond in favour of the Municipality of the _____ of _____ . The amount of the tender **
[status] [community name]
the tender deposit must be at least 5% for a Certified Cheque and 10% for a Bid Bond of the total Tender price submitted or the Tender price for the first year of the Contract.

The tender deposits of the unsuccessful Bidders shall be returned after the Contract has been awarded or otherwise determined. The deposit of the successful Bidder will be retained until the Contract has been signed and the Contract Security has been furnished to the satisfaction of the Municipality.

A.6 CONTRACT SECURITY BOND AND INSURANCE

Contract Security and Insurance as called for in the General Conditions will be required on acceptance of the Contract and before the signing of the Contract.

A.7 BIDDERS TO EXAMINE

Bidders should satisfy themselves by personal examination of the site of the operations or by such other means as they may prefer as to the actual conditions and requirements necessary to perform the operations specified in the Municipal Services Contract.

The Bidder should carefully examine the Tender Documents. The Bidder's attention is drawn to the Supplementary General Conditions in the documents that contain any changes or additions to the General Conditions. The Bidders attention is also drawn to any Addenda which may be issued prior to the time of tender closure. Should a Bidder find any discrepancies or omissions in the documents or should he be in doubt as to their meaning, he should at once notify the _____ of _____. **
[status] [community name]

No verbal agreement or conversation with any officer agent or employee of the _____ of _____ shall affect or ** modify any of the terms or obligations herein stated.
[status] [community name]

The Bidder may not claim, after the submission of a tender, that there was any misunderstanding with respect to the conditions imposed by the Contract.

A.8 ADJUSTMENTS OR WITHDRAWAL OF TENDER

Telegraphic Tenders wil not be accepted. The Bidder may revise his Tender by letter or telex provided that:

(1) It is received on or before the exact time and date fixed for the reception of Tenders.
(2) It contains the time and date of transmission, project identification, closing date and the name and address of the Bidder.
(3) It is addressed to: _____ ** _____
[name and address]

The Bidder may, with no prejudice to himself, withdraw his tender at any time prior to the time set for closing.

A.9 RIGHT TO ACCEPT OR REJECT TENDERS

The Municipality reserves the right to reject any or all Tenders or to accept any Tender.

A.10 ABILITY AND EXPERIENCE OF BIDDER

It is the purpose of the Municipality not to award the Contract/s to any Bidder who does not furnish satisfactory evidence that he has ability and experience in the class of work and that he has or can acquire adequate capital, vehicles, equipment, supplies and/or labour to enable him to carry out the operations effectively and efficiently.

The Bidders Questionnaire must be completed in order that his capabilities in this regard can be assessed by the Municipality. Failure to complete the Questionnaire may result in the tender being considered incomplete.

A.11 EXECUTE CONTRACT

The successful Bidder will be required to execute the Contract within twenty (20) days, not including Sundays or a legal holiday, from the date of mailing of a Notice of Award of the Contract from the Municipality to the Bidder, according to the address given by him. Failure to so execute the Contract shall be sufficient reason for the Municipality to cancel the award without obligation or claim upon the Municipality.

A.12 COMMENCEMENT OF THE OPERATIONS

Bidders are advised that operations under the Municipal Services Contract must commence on the ____ of _____ , 19 ____ and that **
[day] [month] [year]
all necessary preparations must be made to ensure that all equipment or personnel that are necessary are available to provide full services on that date.

SECTION B

TENDER FORM

SCHEDULE OF PRICES

BID BOND

AGREEMENT TO BOND

NOTES ON SECTION B

1. General

In this Example, each bidder submits a completed and signed Tender Form. If his tender is accepted, he then signs and returns the the Articles of Agreement. Another type of contract document has a single "Tender and Acceptance" form which eliminates the need to return additional forms to the bidder for signature.

2. Schedule of Prices

Include any special information or instructions for completing the "Schedule of Prices". These instructions could be regarding any alternatives and options that are allowed, the method of payment or other items. Usually, only a notice of special payment provisions is provided in the Schedule of Prices. The method of payment is detailed in the Specifications (Section E) under the Basis of Payment.

The Schedule of Prices will probably have to be tailored to your specific needs. In the Example, a separate Price Table is provided for each service. The method of payment is based on Unit Prices and the annual and total amounts are extensions based on an estimated Quantity.

The Tender Price Summary Table will have to be adjusted or redone if you are allowing options.

3. Bidders Questionnaire

The Example includes a number of typical questions. You may wish to change or add to these. Sometimes preference is given to "Northern" or "Local" contractors and some sort of definition and proof of this status is required.

4. Bid Bond

A Bid Bond provides the Municipality with tender deposit security through a bonding corporation, called a Surety. Only include a sample Bid Bond form in the Tender Documents if you require a tender deposit. You must fill in the name of the Municipality and the contract name. The Bidder and the Surety fill in the rest.

5. Agreement to Bond

An Agreement to Bond is proof that a bidder will be able to obtain a Performance Bond from a Bonding Agent if he is awarded the contract. It is often redundent, for example if the bidder can obtain a Bid Bond, and is seldom required. A sample form is included in the Example just in case you want to require the bidder to submit one.

TENDER FORM

THE _____ OF _____ **
[status] [community name]

NORTHWEST TERRITORIES

MUNICIPAL SERVICES CONTRACT NO. _____ **

TENDER
BY.....

a Corporation having its head office at .....

OR (in the case of a partnership)

TENDER BY .....

Place of residence or business .....

and .....

Place of residence or business .....

carrying on business under the firm name of .....

.....

OR (in the case of unincorporation and non-partnership bidder)

TENDER BY .....

Place of residence or business .....

hereinafter referred to as the Bidder

NOTE: In the case of a partnership the name and place of residence or business of each partner must be inserted.

TENDER FORM

B.1 The Bidder declares that:

(a) No person, other than the Bidder has any interest in this Tender or in the Contract proposed to be entered into.

(b) This Tender is made without any connection, knowledge, comparison of figures or arrangement with any other person or persons making a Tender for the same work and is in all respects fair and without collusion or fraud.

(c) The several matters stated in the said Tender are in all respects true.

(d) The Bidder has carefully investigated the locality of the operations comprising the work in this Contract, as well as the Tender Documents and Specifications including Addenda and hereby accepts the same as part and parcel of this Contract; and does hereby tender the offer to enter into a Contract Agreement to do all the work or parts of the work as specified if separate contracts are awarded covered by this Contract on the terms and conditions and under the provisions therein set forth; and to accept in full payment therefor in accordance with the Schedule of Prices hereto annexed; and the Bidder also agrees that this offer is to continue open to acceptance for a minimum of sixty (60) days or until the formal Contract is executed by the successful Bidder for the said work; and that the Municipality may at any time without notice accept this Tender whether any other Tender has been previously accepted or not; and the Bidder hereby agrees, that if the Bidder withdraws this Tender before the Municipality shall have considered the Tenders and awarded the Contract the amount of any deposit on this Tender, if by cash or certified cheque, shall be forfeited to the Municipality and if by Bid Bond shall be forthwith payable to the Municipality as liquidated damages and not as a penalty.

B.2 The Bidder agrees that the quantities listed in the Schedule of Prices in this Tender Form are approximate and serves only to provide a basis for comparing tenders and that payment will be adjusted using the unit prices quoted and the actual quantities as recorded monthly and signed by the Contractor's authorized representative and countersigned by the Municipality's authorized representative notwithstanding any minimum quantity or price or lump sum items included in the Tender.

B.3 The Bidder agrees that this Contract will be carried out effectively and efficiently on a continuing basis over the _____ [year] **

B.7 In the event of default or failure on the Bidder's part to enter into the Contract where required to do so by the Municipality, the Bidder agrees that the Municipality shall be at liberty to retain any money deposited by the Bidder for the use of the Municipality; and to accept the next lowest or any Tender, or to advertise for new Tenders, or to carry out the work in any other way it may deem best; and the Bidder also agrees to pay to the Municipality the difference between this Tender and any greater sum which the Municipality may expend or incur by reason of such default or failure including the cost of advertisement for new Tenders; and to indemnify and save harmless the Municipality and its officer, servants or agents from all loss, damage, cost, charges and expenses which it or they may suffer or be put to by reason of any such default or failure.

DATED at _____ this _____ day of _____ 19___.

)_____

)_____

)_____

)_____

_____ _____

(Witness) (Bidder's Signature)

The Bidder of this Tender offers to complete the awarded contract in accordance with the terms contained herein.

DATED at _____ this _____ day of _____ 19___

Witness _____

_____
Signature of authorized person signing for Bidder

_____
Position

_____
Bidder's Corporate Name

TENDER FORM

SCHEDULE OF PRICES

FOR

_____ **

[title of project or Contract]

The Bidder's attention is drawn to the "Instructions to Bidders" for information regarding the completion of this schedule.

Add any special instructions, especially if the Bidders are allowed to submit a bid for any or all services and if prices are not to be submitted for each year of the Contract. Explain any guaranteed quantities or payment.

The following tables are examples of unit price tables for each service (Item). Select only the services (Items) you want in this contract. Number each Item. For each service unit price table you can repeat the cost items for as many years as you want the contract to run. For each year: fill in the commencement and completion date; select the items that describe how you want the contractor paid; and fill in the quantity estimates.

PRICE TABLE

ITEM___: COLLECTION AND DISPOSAL OF BAGGED/BUCKET SERVICE	Quantity [bags/buckets]	Unit Price	Extension
Year 1: _____ [commencement] to _____ [completion]			
1. Charge per bagged/bucket collection service	[estimate]	.....	.....
Total Year 1 (Item 1)			
Repeat for each year of the contract that you want bid prices submitted.			
Year ___: _____ to _____			
2. Charge per bagged/bucket collection service	[estimate]	.....	.....
Total Year ___ (Items 1)			
TOTAL ITEM __ for Years 1 to _____ [last year]			.....

period of the Contract commencing on the ____ of _____ , 19___
[day] [month] [year]
without interruption or reduction of service unless due to circumstances entirely outside the control of the Contractor.

B.4 If this Tender is accepted, the Bidder agrees to furnish a Contract Security for the proper fulfillment of the Contract, as required under the terms of Information for Bidders (Section A) and the General Conditions (Section D), and to execute the Articles of Agreement in triplicate within twenty (20) days, not including Sundays or Legal Holidays, from the date of mailing of the notice from the Municipality to the Bidder, according to the address given by him, that the Contract is ready for signature.

B.5 The Bidder will subcontract the following parts of the work to the subcontractors listed for each part and agrees not to make changes in the following list without written permission of the Municipality.

Part of Work	Sub-Contractor (Name and Address)

B.6 Allowance has been made in this Tender for the following addenda issued on the dates shown:

ADDENDUM NUMBER	ADDENDUM DATED

TENDER FORM

B.7 In the event of default or failure on the Bidder's part to enter into the Contract where required to do so by the Municipality, the Bidder agrees that the Municipality shall be at liberty to retain any money deposited by the Bidder for the use of the Municipality; and to accept the next lowest or any Tender, or to advertise for new Tenders, or to carry out the work in any other way it may deem best; and the Bidder also agrees to pay to the Municipality the difference between this Tender and any greater sum which the Municipality may expend or incur by reason of such default or failure including the cost of advertisement for new Tenders; and to indemnify and save harmless the Municipality and its officer, servants or agents from all loss, damage, cost, charges and expenses which it or they may suffer or be put to by reason of any such default or failure.

DATED at _____ this _____ day of _____ 19___.

)_____

)_____

)_____

)_____

_____ _____

(Witness) (Bidder's Signature)

The Bidder of this Tender offers to complete the awarded contract in accordance with the terms contained herein.

DATED at _____ this _____ day of _____ 19___

Witness _____ _____

Signature of authorized person signing for Bidder

_____

Position

_____

Bidder's Corporate Name

NOTE: (a) If the Bidder is a corporation, the corporate seal must be affixed under the signature of a duly authorized officer or officers of the corporation.

(b) If the Bidder is a partnership, each member of the partnership must sign in the presence of a witness who must also sign.

(c) If the Bidder is not a corporation or a partnership the Bidder must sign in the presence of a witness who must also sign.

TENDER FORM

SCHEDULE OF PRICES

FOR

[title of project or Contract] **

The Bidder's attention is drawn to the "Instructions to Bidders" for information regarding the completion of this schedule.

Add any special instructions, especially if the Bidders are allowed to submit a bid for any or all services and if prices are not to be submitted for each year of the Contract. Explain any guaranteed quantities or payment.

The following tables are examples of unit price tables for each service (Item). Select only the services (Items) you want in this contract. Number each Item. For each service unit price table you can repeat the cost items for as many years as you want the contract to run. For each year: fill in the commencement and completion date; select the items that describe how you want the contractor paid; and fill in the quantity estimates.

PRICE TABLE

ITEM___: WATER DELIVERY	Quantity	Unit Price	Extension
Year 1: _____ [commencement] to _____ [completion]			
1. Fire protection assistance		lump sum	.....
2. Charge per delivery service		.....	.....
3. Charge per quantity of water delivered	[estimated] cu.m [estimated]	.....	.....
Total Year 1 (Items 1, 2 and 3)			
Repeat for each year of the contract that you want bid prices submitted.			
Year ___: _____ to _____			
1. Fire protection assistance		lump sum	.....
2. Charge per delivery service		.....	.....
3. Charge per quantity of water delivered	[estimtaed] cu.m [estimated]	.....	.....
Total Year ___ (Items 1, 2 and 3)			
TOTAL ITEM ___ for Years 1 to _____ [last year]			.....

PRICE TABLE

ITEM___: COLLECTION AND DISPOSAL OF BAGGED/BUCKET SERVICE	Quantity [bags/buckets]	Unit Price	Extension
Year 1: _____ [commencement] to _____ [completion]			
1. Charge per bagged/bucket collection service	[estimate]	.....	.....
Total Year 1 (Item 1)			
Repeat for each year of the contract that you want bid prices submitted.			
Year ___: _____ to _____			
2. Charge per bagged/bucket collection service	[estimate]	.....	.....
Total Year ___ (Items 1)			
TOTAL ITEM __ for Years 1 to _____ [last year]			.....

PRICE TABLE

ITEM___: COLLECTION AND DISPOSAL OF PUMPOUT SEWAGE	Quantity	Unit Price	Extension
Year 1: _____ [commencement] to _____ [completion]			
1. Charge per pumpout service	[estimate]	.....	.....
2. Charge per quantity of pumpout sewage collected	_____ cu.m [estimate]	.....	.....
Total Year 1 (Items 1 and 2)			
Repeat for each year of the contract that you want bid prices submitted.			
Year ___: _____ to _____			
1. Charge per pumpout service	[estimate]	.....	.....
2. Charge per quantity of pumpout sewage collected	_____ cu.m [estimate]	.....	.....
Total Year ___ (Items 1 and 2)			
TOTAL ITEM ___ for Years 1 to _____ [last year]			.....

PRICE TABLE

ITEM___: COLLECTION AND DISPOSAL OF GARBAGE	Quantity (units)	Unit Price	Extension
Year 1: _____ [commencement] to _____ [completion]			
1. Charge per garbage pickup service per unit - Residential	_____	.....	.....
- Non-Residential	_____	.....	.....
- _____ [specify]	[estimate]	.....	.....
Total Year 1 (Item 1)			
Repeat for each year of the contract that you want bid prices submitted.			
Year ___: _____ to _____			
1. Charge per garbage pickup service per unit - Residential	_____	.....	.....
- Non-residential	_____	.....	.....
- _____ [specify]	[estimate]	.....	.....
Total Year ___ (Item 1)			
TOTAL ITEM __ for Years 1 to _____ [last year]			.....

TENDER FORM

TENDER PRICE SUMMARY TABLE

The Total of the extension of each Item of the Schedule of and Prices Tables of the Tender Form shall be entered in the Summary Table below. The purpose of this table is to facilitate recognition of the low tender. It shall in no way be construed to be a lump sum bid.

Select the Items that you are including in this contract and number them.

ITEM___	WATER DELIVERY	.....
ITEM___	COLLECTION AND DISPOSAL OF PUMPOUT SEWAGE	.....
ITEM___	COLLECTION AND DISPOSAL OF BAGGED/BUCKET SEWAGE	.....
ITEM___	COLLECTION AND DISPOSAL OF GARBAGE	.....
	TOTAL OF TENDER	.....

TENDER FORM

BIDDERS QUESTIONNAIRE

The following information is required in order to judge the Bidders ability to fulfill the conditions of the contract.

1. The following vehicles, buildings or other equipment that will be used in the performance of the work if awarded the Contract.

Item	Description (Size, Model, Make)		

2. Indicate the arrangements that will be used for the repair and maintenance of vehicles and equipment used in the performance of the work if awarded the Contract.

_____

_____

_____

3. Indicate what arrangement, including standby vehicles and equipment, will be made in case of breakdown of regular equipment.

_____

_____

_____

BIDDERS QUESTIONNAIRE

4. Location and brief description of previous work and management experience which is similar to that required in this Contract.

_____

_____

_____

_____

_____

5. Name of the supervisor that the Bidder will place on the operations and his previous experience on this type of operation.

_____

_____

6. The average number of persons that will be employed and maintained if awarded the contract is _____ persons.

7.

Include this schedule of service question if the Bidder is required to submit a tentative schedule. You may require the schedule by area or by building.

Indicate in the space below or attached the tentative schedule of services that will be provided if awarded the Contract.

TENDER FORM

BID BOND

KNOW ALL MEN BY THESE PRESENTS THAT WE .....

hereinafter called the Bidder, and .....

a bonding corporation created and existing under the laws of Canada, and

whose principal office for Canada is located in .....

hereinafter called the Surety, are held and firmly bound as Obligers

unto the Municipality of the _____ of _____ in the *** [status] [community name]

Northwest Territories of Canada, hereinafter called the Obligee, in the

full and just sum of .....

dollars of lawful money of Canada, to the payment of which sum well and truly to be made to the said Obligee, its successors or assigns the said Obligers bind themselves, their successors and assigns jointly and severally firmly by these presents.

SIGNED, SEALED AND DELIVERED this.....day of..... 19,....

.....	.....
Witness	Bidder
.....	.....
Witness	Surety

AND WHEREAS the said Bidder is herewith submitting its tender/s for the Municipal Services Contract Number _____ *** [number and/or title of this Contract]

AND WHEREAS the said Bidder represents that it has carefully examined all documents relating to this Contract in the custody of the Obligee and it has investigated the site of the works and declares the amount and nature of the work to be done is understood and that at no time will misunderstanding of some or any of the documents in the custody of the Obligee be pleaded.

AND WHEREAS the said Bidder further proposes to execute a formal written Contract agreement and to furnish a satisfactory Performance Bond and Insurance Coverage in the event that the Bidder is awarded a certain contract by the Obligee.

BID BOND

NOW THEREFORE, THE CONDITION OF THE FOREGOING OBLIGATION is such that if the aforesaid Bidder shall be awarded a certain contract the said Bidder will, within the time required, enter into a formal written contract and give a good and sufficient bond to secure the performance of the terms and conditions of the contract and provide the insurance coverage required by the contract documents within twenty (20) days, not including Sundays or a Legal Holiday, from the date of mailing of the notice of the award of the said contract from the Municipality to the Bidder, according to the address given by him, that the said contract is ready for signature, then this obligation is to be void; otherwise the Bidder and Surety will pay unto the Obligee the difference in money between the amount of the bid of the said Bidder and the amount for which the Obligee legally contracts with another party to perform the work if the latter amount be in excess of the former plus the cost of re-awarding the contract which it is agreed amounts to $1,000 liquidated damages but in no event shall the Surety's liability exceed the penal of this bid bond.

IN TESTIMONY WHEREOF the said Bidder and Surety have caused their corporate seals to be affixed hereto under the hands of their proper officers the day and year first written above.

SIGNED SEALED AND DELIVERED in the presence of:

.....	.....
Witness	Bidder
.....	.....
Witness	Surety

TENDER FORM

AGREEMENT TO BOND

(CONTRACT PERFORMANCE BOND)

We, the undersigned, hereby agree to become bound as Surety for.....

.....

in a Bond totalling Twenty Per Cent (20%) of the total annual Contract amount, and conforming to the Instruments of Contract attached hereto, for the full and due performance of the works shown or described herein, if one of the alternative Tender/s for .....

.....

.....

is accepted by the Municipality of _____ of _____, **
[status] [community name]

Northwest Territories.

It is a condition of this Agreement that if one of the above-mentioned Tenders is accepted, application for a Performance Bond must be completed with the undersigned within twenty (20) days, not including Sundays or Legal Holidays, from the date of mailing of the notice of award of the contract on acceptance of the Tender related thereto, otherwise this Agreement shall be null and void.

DATED this .....day of ....., 19.....

.....
Name of Bonding Company

.....
Signature of Authorized Person
Signing for Bonding Company

Company Seal

.....
Position

SECTION C

ARTICLES OF AGREEMENT

CONTRACT PERFORMANCE BOND

IRREVOCABLE LETTER OF GUARANTEE

NOTES ON SECTION C

1. Articles of Agreement

This is the legal document that binds the parties, the Municipality and the Contractor, to fulfill their respective obligations as specified. In this Example, the Agreement does not contain all the conditions, specifications and prices within the form itself. Instead, it contains a list of the documents that are included in the Agreement as if they were completely written out.

The Articles of Agreement are included in the Tender Documents only to familiarize the bidder with the Agreement. When the contract is to be awarded you should complete and fill in the blanks and send the Agreement to the Contractor for his signature.

2. Contract Performance Bond

A Bond provides the Municipality with contract security through a bonding agent, called a Surety. They promise to reimburse the Municipality for any costs, debts or fines incurred which may have resulted from the Contractor not fulfilling his obligations as specified in the Agreement.

You only have to fill in the name of the Municipality and the contract number. The Contractor and the Surety will complete the rest.

This is only incuded in the Tender Documents to familiarize the bidder with the form.

3. Irrevocable Letter of Guarantee

This is a type of contract security that can be obtained through a bank. It is usually easier for northerners to obtain a Letter than a Bond. This form can be used as a guide for bidders if they choose to provide this type of contract security.

ARTICLES OF AGREEMENT

THE _____ OF _____ ***
[status] [community name]

NORTHWEST TERRITORIES

MUNICIPAL SERVICES CONTRACT NO._____ ***

THIS AGREEMENT made in triplicate the ..... day of .....

One Thousand Nine Hundred and .....

BETWEEN:

THE MUNICIPALITY OF _____ OF _____, N.W.T., ***
[status] [community name]
hereinafter call the "Municipality",

AND:

.....

.....

OF

.....

.....

hereinafter called the "Contractor".

ARTICLES OF AGREEMENT

WHEREAS the Municipality has awarded the Contract to the Contractor for Municipal Services comprising:

Describe the services to be provided in this contract.

[A: trucked water delivery] ***
[B: collection and disposal of pumpout sewage]
[C: collection and disposal of honeybag/bucket sewage]
[D: collection and disposal of garbage]
[E: _____]

in the _____ of _____, Northwest Territories for the *** period from the _____ of _____ 19____ to the _____ of _____ 19____
[status] [community name] [day] [month] [year] [day] [month] [year]

AND WHEREAS the Municipality has authorized the execution of this Agreement according to the following documents:

List the Sections that are part of the Contract. The following is a typical listing.

1.	Instructions to Bidders	Section A
2.	Tender Form, Schedule of Prices, Bid Bond and Agreement to Bond	Section B
3.	Articles of Agreement, Contract Performance Bond and Irrevocable Letter of Credit	Section C
4.	General Conditions and Supplementary General Conditions	Section D
5.	Specifications	Section E
6.	Information on Building Units	Section F
7.	Plans and Figures	Section G

which are identified by the signature of the Contractor and are made part of this Contract as if embodied herein.

ARTICLES OF AGREEMENT

EXECUTED ON BEHALF OF THE MUNICIPALITY BY

Signature of Authorized Officer

(Print Name of Officer)

(Print Title of Officer)

in the presence of

Signature of Witness

and countersigned by

(Print Name of Officer)

Signature of Authorized Officer

(Print Title of Officer)

in the presence of

Signature of Witness

ARTICLES OF AGREEMENT

AND all communications in writing between the parties shall be deemed to have been received by the addressee if delivered to the individual, or to a member of the firm, or to any officer of the corporation for whom they are intended, or if sent by mail or by telegram addressed as follows:

The Municipality at: _____
[address]

_____

The Contractor at: _____

_____

IN WITNESS WHEREOF the parties hereto have executed these Articles of Agreement as of the day and year first above written.

FOR LIMITED COMPANY
SEALED, ATTESTED TO AND DELIVERED on behalf of the Contractor by

_____
(Print Name of Officer)

_____
Signature of Authorized
Signing Officer

_____
(Print Name of Officer)

_____
(Print Name of Officer

Corporate
Seal

_____
Signature of Authorized
Signing Officer

_____
(Print Name of Officer

FOR PARTNERSHIP OR SOLE PROPRIETORSHIP
SEALED, ATTESTED TO AND DELIVERED, on behalf of the Contractor by

_____
Signature of Partners or
Sole Proprietorship

_____
Seal

in the presence
of

_____
(Print Name of Partner
or Sole Proprietor)

_____
(Signature of Witness

_____
Signature of Partner

_____
Seal

in the presence
of

_____
(Print Name of Partner
or Sole Proprietor)

_____
(Signature of Witness

ARTICLES OF AGREEMENT

EXECUTED ON BEHALF OF THE MUNICIPALITY BY

Signature of Authorized Officer	(Print Name of Officer)
	(Print Title of Officer)
in the presence of	
	Signature of Witness
and countersigned by	
	(Print Name of Officer)
Signature of Authorized Officer	(Print Title of Officer)
in the presence of	Signature of Witness

CONTRACT PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS THAT WE .....

hereinafter called the Contractor, and .....

a bonding corporation created and existing under the laws of Canada and

whose principal office for Canada is located in .....
hereinafter called the Surety, are held and firmly bound as Obligors

unto the Municipality of the _____ of _____ in the ***
[status] [community name]
Northwest Territories, hereinafter called the Obligee, in the full and

just sum of .....
dollars of lawful money of Canada, the payment of which sum well and truly to be made to the said Obligee, its successors or assigns the said Obligors bind themselves, their successors and assigns, jointly and severally firmly by these presents.

SIGNED, SEALED AND DELIVERED this ..... day of ..... 19 ...

.....	.....
Witness	Contractor
.....	.....
Witness	Surety

AND WHEREAS the said Contractor has entered into a formal written contract with the Obligee dated this ..... day of ..... 19... for Municipal Services Contract _____ *** [number and/or title of the Contract]
which by reference hereto is made a part hereof as fully to all interests and purposes as though recited in full herein.

NOW THEREFORE, THE CONDITION OF THE FOREGOING OBLIGATION is such that if the said Contractor shall well and faithfully in all respects perform, execute and carry out the said contract (together with any extensions thereof that may be granted by the Obligee, notice of which to the Surety is hereby waived) to the satisfaction of the said Obligee within all the terms and conditions of the said Contract, and shall indemnify the said Obligee and all officers and servants thereof from all manner of loss, damge, expense, suits, claims, liens, and demands arising out of the said contract, then this obligation shall be void; otherwise it shall remain in full force and effect in law.

CONTRACT PERFORMANCE BOND

IN TESTIMONY WHEREOF, the said Contractor and Surety have caused their corporate seals to be affixed hereto under the hands of their proper officers the day and year first written above.

SIGNED, SEALED AND DELIVERED

in the presence of:

.....	.....
Witness	Contractor
.....	.....
Witness	Surety

IRREVOCABLE LETTER OF GUARANTEE
FOR
LABOUR AND MATERIAL
AND/OR
PERFORMANCE GUARANTEE

[Insert name of Municipality]

[Insert address of Municipality]

Dear Sir:

At the request of our [Insert Name and No. of Branch Office] Branch and on behalf of and for account of [Insert Contractor's Name and Account No.], we hereby open our Irrevocable Letter of Guarantee No. [Insert No.] in favor of yourselves, for a sum not exceeding a total of CDN $ [Insert Amount].

This instrument is being established to guarantee payment of security deposits for Labour and Material and/or Performance Guarantee for the [Insert name of Municipality] on [Insert Name of Project].

This guarantee shall be available to you by your sight draft drawn on the [Insert Name of Bank and Address] when accompanied by your signed statement that [Contractor's Name] is in default of the contract, or in the event that the [Name of the Bank] refuses to extend the expiry date of this guarantee for a further term.

This Guarantee expires [Insert Expiry Date].

The responsibility of this Bank is limited to the payment of monies only and not the performance of services or otherwise.

Drafts drawn under this Guarantee must be enfaced, "Drawn under [Insert Name and Address of Bank issuing the] "Irrevocable Letter of Guarantee No. [Insert Number] dated [Insert Date].

We hereby agree with the drawers, endorsers and bona fide holders of drafts drawn under and in accordance with the terms of the credit that the same shall be duly honoured if drawn and negotiated on or before [Insert Date].

[Insert Name of Bank]

Countersigned

Authorized Signature

SECTION D

GENERAL CONDITIONS

SUPPLEMENTARY GENERAL CONDITIONS

NOTES ON SECTION D

1. General

The General Conditions outline the legal requirements and relationships, scope of the operations, control of the work, materials and equipment and the terms of payment. These are the general requirements and as such they do not change much with each service contract. Many of these Articles are the same for any contract.

Because these General Conditions do not change much, it is common to make amendments, deletions or additions by including Supplementary General Conditions. In this way the General Conditions remain intact. However, if you do wish to make a lot of changes it may be easier to mark the changes on the Example and retype.

Many of the Articles are self-explanatory. Notes on a few of these are provided but you should familiarize yourself with the total contents of the General Conditions.

2. Article 8 - Estimated Quantities of Operation

Note that if the actual quantity of work differs from the estimate by 15%, new prices can be negotiated. The Municipality determines any revised prices but they are to be based on the actual cost of operations.

3. Article 22 and 23 - Right to Take Over and Purchase Equipment

These Articles give the Municipality the right to take over the Contractor's equipment to provide service if the Contractor fails to provide the service. These Articles are necessary to ensure that vital services can be maintained.

4. Article 29 - Contract Security

Note that a Performance Bond of only 20% of the annual contract value is required. Performance Bonds for construction contracts are usually 50% to 100% but the monitary consequences of nonfulfillment of a trucked service contract are not as great. No material or labour bond is required.

5. Article 47 - Right to Audit

This provision will understandably be unpopular with Contractors. However, it is suggested for trucked service contracts because of the limited experience with which to establish
fair prices and because it has been common to negotiate price changes during the term of the contract.

SECTION D

GENERAL CONDITIONS

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SECTION C

ARTICLES OF AGREEMENT

CONTRACT PERFORMANCE BOND

IRREVOCABLE LETTER OF GUARANTEE

NOTES ON SECTION C

1. Articles of Agreement

This is the legal document that binds the parties, the Municipality and the Contractor, to fulfill their respective obligations as specified. In this Example, the Agreement does not contain all the conditions, specifications and prices within the form itself. Instead, it contains a list of the documents that are included in the Agreement as if they were completely written out.

The Articles of Agreement are included in the Tender Documents only to familiarize the bidder with the Agreement. When the contract is to be awarded you should complete and fill in the blanks and send the Agreement to the Contractor for his signature.

2. Contract Performance Bond

A Bond provides the Municipality with contract security through a bonding agent, called a Surety. They promise to reimburse the Municipality for any costs, debts or fines incurred which may have resulted from the Contractor not fulfilling his obligations as specified in the Agreement.

You only have to fill in the name of the Municipality and the contract number. The Contractor and the Surety will complete the rest.

This is only incuded in the Tender Documents to familiarize the bidder with the form.

3. Irrevocable Letter of Guarantee

This is a type of contract security that can be obtained through a bank. It is usually easier for northerners to obtain a Letter than a Bond. This form can be used as a guide for bidders if they choose to provide this type of contract security.

ARTICLES OF AGREEMENT

THE _____ OF _____ ***
[status] [community name]

NORTHWEST TERRITORIES

MUNICIPAL SERVICES CONTRACT NO._____ ***

THIS AGREEMENT made in triplicate the ..... day of .....

One Thousand Nine Hundred and .....

BETWEEN:

THE MUNICIPALITY OF _____ OF _____, N.W.T., ***
[status] [community name]
hereinafter call the "Municipality",

AND:

.....

.....

OF

.....

.....

hereinafter called the "Contractor".

ARTICLES OF AGREEMENT

WHEREAS the Municipality has awarded the Contract to the Contractor for Municipal Services comprising:

Describe the services to be provided in this contract.

[A: trucked water delivery] ***
[B: collection and disposal of pumpout sewage]
[C: collection and disposal of honeybag/bucket sewage]
[D: collection and disposal of garbage]
[E: _____]

in the _____ of _____, Northwest Territories for the *** period from the _____ of _____ 19____ to the _____ of _____ 19____
[status] [community name] [day] [month] [year] [day] [month] [year]

AND WHEREAS the Municipality has authorized the execution of this Agreement according to the following documents:

List the Sections that are part of the Contract. The following is a typical listing.

1.	Instructions to Bidders	Section A
2.	Tender Form, Schedule of Prices, Bid Bond and Agreement to Bond	Section B
3.	Articles of Agreement, Contract Performance Bond and Irrevocable Letter of Credit	Section C
4.	General Conditions and Supplementary General Conditions	Section D
5.	Specifications	Section E
6.	Information on Building Units	Section F
7.	Plans and Figures	Section G

which are identified by the signature of the Contractor and are made part of this Contract as if embodied herein.

ARTICLES OF AGREEMENT

AND all communications in writing between the parties shall be deemed to have been received by the addressee if delivered to the individual, or to a member of the firm, or to any officer of the corporation for whom they are intended, or if sent by mail or by telegram addressed as follows:

The Municipality at: [address]

The Contractor at:

IN WITNESS WHEREOF the parties hereto have executed these Articles of Agreement as of the day and year first above written.

FOR LIMITED COMPANY
SEALED, ATTESTED TO AND DELIVERED on behalf of the Contractor by

(Print Name of Officer)

Signature of Authorized Signing Officer

(Print Name of Officer)

(Print Name of Officer

Corporate Seal

Signature of Authorized Signing Officer

(Print Name of Officer

FOR PARTNERSHIP OR SOLE PROPRIETORSHIP
SEALED, ATTESTED TO AND DELIVERED, on behalf of the Contractor by

Seal

(Print Name of Partner or Sole Proprietor)

Signature of Partners or Sole Proprietorship

in the presence of

(Signature of Witness

Seal

(Print Name of Partner or Sole Proprietor)

Signature of Partner

in the presence of

(Signature of Witness

ARTICLES OF AGREEMENT

EXECUTED ON BEHALF OF THE MUNICIPALITY BY

Signature of Authorized Officer	(Print Name of Officer)
	(Print Title of Officer)
in the presence of	
	Signature of Witness
and countersigned by	
	(Print Name of Officer)
Signature of Authorized Officer	(Print Title of Officer)
in the presence of	Signature of Witness

CONTRACT PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS THAT WE .....

hereinafter called the Contractor, and .....

a bonding corporation created and existing under the laws of Canada and

whose principal office for Canada is located in .....
hereinafter called the Surety, are held and firmly bound as Obligors

unto the Municipality of the _____ of _____ in the ***
[status] [community name]
Northwest Territories, hereinafter called the Obligee, in the full and

just sum of .....
dollars of lawful money of Canada, the payment of which sum well and truly to be made to the said Obligee, its successors or assigns the said Obligors bind themselves, their successors and assigns, jointly and severally firmly by these presents.

SIGNED, SEALED AND DELIVERED this ..... day of ..... 19 ...

.....	.....
Witness	Contractor
.....	.....
Witness	Surety

AND WHEREAS the said Contractor has entered into a formal written contract with the Obligee dated this ..... day of ..... 19... for *** Municipal Services Contract _____
[number and/or title of the Contract]
which by reference hereto is made a part hereof as fully to all interests and purposes as though recited in full herein.

NOW THEREFORE, THE CONDITION OF THE FOREGOING OBLIGATION is such that if the said Contractor shall well and faithfully in all respects perform, execute and carry out the said contract (together with any extensions thereof that may be granted by the Obligee, notice of which to the Surety is hereby waived) to the satisfaction of the said Obligee within all the terms and conditions of the said Contract, and shall indemnify the said Obligee and all officers and servants thereof from all manner of loss, damge, expense, suits, claims, liens, and demands arising out of the said contract, then this obligation shall be void; otherwise it shall remain in full force and effect in law.

CONTRACT PERFORMANCE BOND

IN TESTIMONY WHEREOF, the said Contractor and Surety have caused their corporate seals to be affixed hereto under the hands of their proper officers the day and year first written above.

SIGNED, SEALED AND DELIVERED

in the presence of:

.....	.....
Witness	Contractor
.....	.....
Witness	Surety

IRREVOCABLE LETTER OF GUARANTEE
FOR
LABOUR AND MATERIAL
AND/OR
PERFORMANCE GUARANTEE

[Insert name of Municipality]

[Insert address of Municipality]

Dear Sir:

At the request of our **[Insert Name and No. of Branch Office]** Branch and on behalf of and for account of **[Insert Contractor's Name and Account No.]**, we hereby open our Irrevocable Letter of Guarantee No. **[Insert No.]** in favor of yourselves, for a sum not exceeding a total of CDN $ **[Insert Amount]**.

This instrument is being established to guarantee payment of security deposits for Labour and Material and/or Performance Guarantee for the **[Insert name of Municipality]** on **[Insert Name of Project]**.

This guarantee shall be available to you by your sight draft drawn on the **[Insert Name of Bank and Address]** when accompanied by your signed statement that **[Contractor's Name]** is in default of the contract, or in the event that the **[Name of the Bank]** refuses to extend the expiry date of this guarantee for a further term.

This Guarantee expires **[Insert Expiry Date]**.

The responsibility of this Bank is limited to the payment of monies only and not the performance of services or otherwise.

Drafts drawn under this Guarantee must be enfaced, "Drawn under **[Insert Name and Address of Bank issuing the]** "Irrevocable Letter of Guarantee No. **[Insert Number]** dated **[Insert Date]**.

We hereby agree with the drawers, endorsers and bona fide holders of drafts drawn under and in accordance with the terms of the credit that the same shall be duly honoured if drawn and negotiated on or before **[Insert Date]**.

[Insert Name of Bank]

_____
Countersigned

_____
Authorized Signature

SECTION D

GENERAL CONDITIONS

SUPPLEMENTARY GENERAL CONDITIONS

NOTES ON SECTION D

1. General

The General Conditions outline the legal requirements and relationships, scope of the operations, control of the work, materials and equipment and the terms of payment. These are the general requirements and as such they do not change much with each service contract. Many of these Articles are the same for any contract.

Because these General Conditions do not change much, it is common to make amendments, deletions or additions by including Supplementary General Conditions. In this way the General Conditions remain intact. However, if you do wish to make a lot of changes it may be easier to mark the changes on the Example and retype.

Many of the Articles are self-explanatory. Notes on a few of these are provided but you should familiarize yourself with the total contents of the General Conditions.

2. Article 8 - Estimated Quantities of Operation

Note that if the actual quantity of work differs from the estimate by 15%, new prices can be negotiated. The Municipality determines any revised prices but they are to be based on the actual cost of operations.

3. Article 22 and 23 - Right to Take Over and Purchase Equipment

These Articles give the Municipality the right to take over the Contractor's equipment to provide service if the Contractor fails to provide the service. These Articles are necessary to ensure that vital services can be maintained.

4. Article 29 - Contract Security

Note that a Performance Bond of only 20% of the annual contract value is required. Performance Bonds for construction contracts are usually 50% to 100% but the monitary consequences of nonfulfillment of a trucked service contract are not as great. No material or labour bond is required.

5. Article 47 - Right to Audit

This provision will understandably be unpopular with Contractors. However, it is suggested for trucked service contracts because of the limited experience with which to establish fair prices and because it has been common to negotiate price changes during the term of the contract.

SECTION D

GENERAL CONDITIONS

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ARTICLE 1. INTERPRETATION

In the Contract:

"Municipality" shall mean the Municipality, Village, Town or City named in the Agreement.

"Contractor" shall mean the Contractor named in the Agreement.

"Subcontractor" shall mean any person, firm or corporation having a contract with the Contractor for the execution of a part or parts of the work included in this Contract.

"Administrator" or "Municipal Administrator" shall mean a person designated by the Municipality duly authorized to act for the Municipality.

"Inspector" or "Municipal Inspector" shall mean a person designated by the Municipality duly authorized to inspect and monitor the Contractor under the terms of the Contract.

"Contract" shall mean the complete set of documents, specifications and addenda incorporated therein.

"Work" or "Operation" shall, unless the context otherwise requires, mean the whole of the work, materials, labour, matters and things to be done, furnished or performed by the Contractor under this Contract.

"Material" shall, unless otherwise specified, mean anything and everything other than persons or the Contractor's equipment required to be furnished under this Contract.

"Equipment" or "Plant" shall mean anything and everything except persons used by the Contractor in performance of the work and except materials as defined herein.

"Supply" or "Provide" shall mean supply and pay for or provide and pay for.

"Herein" and "Hereof" and similar expressions shall refer to the Contract as a whole and not to any particular part, unless the context specifically requires it.

In the case of any inconsistancies or conflict between the provisions of the Contract the provisions of such documents and addenda thereto will take precidence and govern in the following order:

1. Articles of Agreement
2. Supplementary General Conditions
3. General Conditions
4. Specifications
5. All other documents

In this Contract, words in the singular or masculine gender shall include the plural or feminine gender where applicable.

The headings are provided for convenience of reference only and do not form a part of the Contract.

ARTICLE 2. SUCCESSORS OR ASSIGNS

The Contract shall inure to the benefit of and be binding upon the parties hereto, and their executors, administrators, successors and assigns.

ARTICLE 3. ASSIGNMENT OF CONTRACT

The Contract may not be assigned without the written consent of the Municipality.

ARTICLE 4. SUBCONTRACTING BY THE CONTRACTOR

Neither the whole nor any part of the work may be subcontracted by the Contractor without the written consent of the Municipality.

ARTICLE 5. CONTRACTOR'S INVESTIGATION

The Contractor shall by personal inspection, examination, calculation or other means, satisfy himself with respect to the local conditions and the character and extent of the operations to be carried out and, except as provided for in the Contract, the Contractor shall accept all risk of conditions now existing or arising in the course of the operations which might or could make the operations more expensive or more onerous to fulfill than was contemplated or known when the Contract was signed.

ARTICLE 6. CONFORMITY WITH THE SPECIFICATIONS

The Contractor shall perform all operations in strict conformance with the specifications.

ARTICLE 7. DESCRIPTION OF OPERATIONS ALL INCLUSIVE

The description of the operations set out in the Contract includes not only the particular operations mentioned but also all labour, plant, equipment, and material necessary for the full execution and completion of the operations as specified. All labour, plant, equipment and materials used in the operation's as specified will be supplied by the Contractor unless it is expressly specified to the contrary.

ARTICLE 8. ESTIMATED QUANTITY OF OPERATIONS

Quantities of operations set forth in the Contract are approximate only. If the quantity of operations to be carried out exceeds the estimated quantity, the Contractor shall proceed with the operations and payment will be made on the basis of the quoted unit price or rate per unit set forth in the Schedule of Prices in the Contract except as provided below:

In the case of a major item where the quantity of operations to be carried out exceeds or is less than the estimated quantity by more than fifteen (15%) per cent, then upon the written request of either party to the Contract, negotiations shall be carried out as soon as possible to determine an agreeable revised Schedule of Prices. The revised prices shall be determined by the Municipality with due consideration to the actual costs as determined by a financial statement provided by the Contractor, if necessary, plus a reasonable allowance for profit and applicable overhead taking into account the affect of fixed costs.

ARTICLE 9. CHANGES AND ALTERATIONS

The Municipality may, by order in writing at any time before or after the commencement of the operations, delete, extend, increase, decrease, vary or otherwise alter the operations to be carried out. If the character of the operations to be carried out is actually changed by reason of such written order of the Municipality or by reason of incorrect written information supplied by the Municipality and if the change increases or decreases the cost of the operations to be carried out, the Contractor shall proceed with the operations and upon written request of either party to the Contract, negotiations shall, as soon as reasonably possible, be carried out to determine the method and amount of compensation to be paid to either party. If such change in operations relates solely to quantities, it shall be dealt with under Estimated Quantity of Operations.

ARTICLE 10. INSPECTION AND INSPECTOR'S AUTHORITY

The Municipal Administrator or an Inspector authorized by him in that behalf may at all reasonable times inspect, inquire into and report upon the operations of the Contractor under this agreement and the quality of service provided to the public by the Contractor thereunder.

The Inspector may monitor and issue directions to the extent of ensuring the fulfillment of the Contract and the completion of the operations in accordance with the Specifications. He shall authorize the quantities of service which are to be paid for under the Contract and determine all questions related to the operations. The Inspector shall in all cases decide every question which may arise relative to the performance of the operations under the Contract. He shall, within a reasonable time, render a decision on action to be taken arising from major or repetitive

complaints, on all claims by the Contractor and on all questions which may arise relative to the performance of the operations or the intent or interpretation of the Contract. With respect to any instruction or decision by the Inspector, the Contractor may make a written appeal to the Municipal Administrator who shall consider the situation and obtain expert and legal advise, if warranted, to arrive at a decision.

The Contractor shall make such alterations in his method or schedule of operations, equipment and working forces that are in the opinion of the Inspector necessary to ensure the quality of the service specified under the Contract.

The Contractor shall at all times and at his own expense furnish all reasonable aid and assistance required by the Inspector for the proper inspection and monitoring of the operations. The Contractor shall obey the directions of the Inspector or his authorized representative and such directions shall be made in writing at the request of the Contractor.

Notwithstanding any monitoring that the Inspector might carry out on behalf of the Municipality, the failure of the Inspector to issue instructions related to operations carried out shall not constitute a waiver of any specification and except as otherwise provided herein, the Contractor shall be and remain liable for faulty operations and any loss, costs, changes or expenses in connection therewith.

ARTICLE 11. SUSPENSION OR CANCELLATION OF THE CONTRACT

Failure of the Contractor to remedy any serious breach of this Contract within seven (7) days of receipt of written notice thereof being mailed to the Contractor by prepaid double registered mail shall entitle the Municipality forthwith and without further notice to suspend or cancel the Contract and any payment that, but for such suspension or cancellation would have been due to the Contractor, shall be retained by the Municipality toward partial satisfaction of any damages to which the Municipality shall or may be entitled in respect of such breach.

ARTICLE 12. RESPONSIBILITY TO PROVIDE SERVICES

The Contractor shall be responsible to provide efficient operations and service to meet the needs of the customers and to avoid inconvenience to the customers. In the event that normal service cannot be provided due to breakdown of equipment, road conditions or any other reason, the Contractor shall endeavor to provide emergency service by whatever means is practical and as may be directed by the Inspector.

If the Contractor should fail to provide any services specified under this Contract or to correct any customer complaint to the satisfaction of the Inspector, the Municipality reserves the right to provide services and charge the complete cost of providing the services, plus applicable overhead, to the Contractor as a deduction from the Contract payment.

ARTICLE 13. INVESTIGATION OF COMPLAINTS

The Contractor shall investigate all complaints and take appropriate action to rectify the situation promptly.

Where the Contractor considers that the cause of the compalint is outside the terms of the Contract, he shall notify the Inspector who shall render a decision as to the responsibility to rectify the cause of the complaint.

ARTICLE 14. SCHEDULE OF SERVICE

The Contractor shall develop, submit for approval and adhere to an approved schedule of service for the efficient carrying out of the services required according to the Contract. Except in exceptional circumstances, such as may be caused by extreme weather or road conditions, the approved schedule must be adhered to.

ARTICLE 15. MANAGEMENT OF THE CONTRACT

The Contractor shall provide competent management staff to provide overall and detailed direction of the operations specified under the Contract and to have senior personnel available at all times with authority to take any necessary actions on behalf of the Contractor to ensure that the operations are carried out efficiently.

ARTICLE 16. CHARACTER AND EMPLOYMENT OF WORKMEN

The Contractor shall employ orderly and competent personnel without any discrimination whatsover. Employees should be residents of or living in the vicinity of the Municipality wherever practical and consistent with reasonable efficiency. Whenever the Inspector shall inform the Contractor in writing that any man or men carrying out the operations are in the opinion of the Inspector incompetent or fail to carry out the work in a workmanlike manner or cause a public health risk, such man or men shall be removed from the operations under the Contract and shall not be reassigned to this work without the consent in writing of the Inspector.

ARTICLE 17. LABOUR DISPUTES

The Contractor shall bear the risk and responsibility of any loss, damage or expense to the operations or to himself of any nature and kind whatsoever arising from strikes or labour disputes.

ARTICLE 18. LOCAL SERVICES

The Contractor shall wherever practical and consistent with reasonable efficiency use services and businesses located in the Municipality.

ARTICLE 19. CONTRACTOR'S MATERIALS AND EQUIPMENT

The Contractor shall provide all vehicles, equipment, buildings, plant materials and fuel necessary for the full execution and efficient completion of the operations unless it is expressly specified to the contrary in the Specifications. This shall include necessary standby vehicles, equipment and materials.

The Contractor shall provide a routine maintenance service of all vehicles and equipment to ensure continuous and efficient operations under all conditions. The Contractor shall have available a repair workshop and suitable maintenance equipment, tools, and routine spare parts to ensure that operations under the Contract can be carried out on a regular basis taking into account the difficulties, time and costs of importing supplies at various times of the year.

ARTICLE 20. MUNICIPALITY PROVIDED MATERIALS AND EQUIPMENT

The Municipality may provide, for use by the Contractor for and during operations under this Contract, vehicles, equipment, buildings, plant and materials as indicated in the Specifications.

The Contractor shall take all reasonable care in operating or using Municipality owned vehicles and equipment and shall notify the Municipality as to any defect, damage or maintenance requirements.

The Contractor is liable to the Municipality for loss or damage to vehicles, equipment, buildings, plant and materials, whether attributable to causes beyond his control or not, supplied or made available by the Municipality to the Contractor for use in connection with the operations under this Contract other than loss or damage resulting from and directly attributable to reasonable wear and tear.

The Contractor shall be backcharged for any increased or supplementary insurance premiums or operating and maintenance costs that are attributable to the carelessness or inefficient operations or practices of the Contractor, his servants or agents.

ARTICLE 21. PUBLIC HEALTH ORDINANCE

The Contractor shall, irrespective of ownership, maintain all vehicles and equipment and conduct operations to the satisfaction of the District Medical Health Officer or Local Health Officer appointed in accordance with the Northwest Territories Public Health Ordinance.

ARTICLE 22. RIGHT OF MUNICIPALITY TO TAKE OVER VEHICLES, MATERIALS AND EQUIPMENT

If the Contractor fails to fulfill the Contract as stated in this agreement, the Municipality shall have the right to take over all vehicles, materials and equipment owned by the Contractor in order to continue operations specified in this Contract. The rental or capital value of the vehicles, equipment and supplies will be assessed by the Inspector of the Municipality and such value shall be offset against any loss, damage, expense or cost chargeable to the Contractor.

ARTICLE 23. EQUIPMENT PURCHASE OPTION

In the event that the Municipality shall terminate the permission granted to the Contractor under this Contract, the Municipality shall have the first right and option to purchase the equipment used by the Contractor in the operations under this Contract at a price equal to any offer made in good faith within a reasonable time of the Municipality announcing its intention to terminate such permission, or at such other price as may be agreed upon between the parties.

ARTICLE 24. NO IMPLIED OBLIGATIONS

No implied obligations of any kind by or on behalf of the Municipality shall arise from anything in the contract and the express covenants and agreements herein contained and made by the Municipality are and shall be the only covenants and agreements upon which any right against the Municipality are to be founded, and without limiting the generality of the foregoing, the contract supersedes all communications, negotiations and agreements, either written or oral, relating to the operations and made prior to the date of the contract.

ARTICLE 25. RELATIONSHIP OF THE MUNICIPALITY AND CONTRACTOR

Nothing contained in this agreement shall create an agency or employment relationship between the Municipality and the Contractor, and the Contractor shall in all respects be an independant contractor having no authority or power to bind the Municipality or otherwise render the Municipality liable to third parties at law.

ARTICLE 26. MUNICIPAL EMPLOYEES AND COUNCILORS NOT TO BENEFIT

No employee of the Municipality or elected member of the Municipal Council shall be admitted to any share or part of the Contract or to any benefit arising therefrom.

ARTICLE 27. INDEMNIFICATION BY THE CONTRACTOR

The Contractor shall indemnify and save harmless the Municipality from and against all claims, demands, loss, costs, damages, actions, suits and other proceedings by whomsoever made, brought or prosecuted in any manner based upon, occasioned by or attributed to any act, omission or wrongful neglect of the Contractor, in breach or in performance of this Contract or otherwise.

ARTICLE 28. CONTRACTOR'S RESPONSIBILITY FOR DAMAGES

The Contractor, his agents and all workmen and persons employed by him or under his control, including approved Subcontractors, shall use due care that no person or property is injured and that no rights are infringed in the carrying out or omission in carrying out of the operations under this Contract and the Contractor shall be solely responsible for all damages by whomsoever claimable in respect of any injury to persons or damage to lands, buildings, structures, roads or property of whatever description and shall at his own expense make such provisions as may be necessary to ensure the avoidance of any such damage, injury and infringement.

Nothingstanding the indemnity provisions, where in the opinion of the Inspector, the Contractor has failed to rectify any damage, injury or infringement or has failed to adequately compensate any person for any damage, injury or infringement for which the Contractor is responsible under the contract, the Municipality following notice in writing to the Contractor of his intention so to do, may withhold payment of any monies due to the Contractor under this or any other contract until the Contractor has rectified such damage, injury or infringement provided however that the Municipality will not withhold such monies where, in the opinion of the Inspector, such damges may reasonably be expected to be covered by the Contractor's Insurance or where there are reasonable grounds upon which the Contractor denies liability for such damage, injury or infringement and the Contractor has given the claimant a reasonable time to establish the validity of his claim and provided further that the amount withheld under this Article shall not exceed the amount of such claims against the Contractor.

ARTICLE 29. CONTRACT SECURITY

To ensure the faithful execution and proper fulfillment of this Contract, the Contractor shall provide to the Municipality at the time of execution of the Agreement and maintain throughout the duration of the

Contract a Performance Bond in the amount of 20% of the total current annual Contract amount. The Bond must be issued by a surety company licensed to conduct business in the Northwest Territories and approved by the Municipality prior to the execution of the Contract.

Alternatively, the Contractor may provide an Irrevocable Letter of Guarantee issued by a Bank licensed to conduct business in the Northwest Territories and approved by the Municipality prior to execution of the Contract, in the amount of 5% of the total current annual Contract amount.

ARTICLE 30. LIABILITY INSURANCE

The Contractor shall, at his own expense, take out and keep in force until the date of completion of the specified operations under this Contract, a comprehensive policy of public liability and property damage insurance. Such insurance shall be on a form and with an Insurer acceptable to the Municipality. Such insurance shall be in the name of the Contractor and the Municipality, and shall include a Cross Liability clause. Such insurance shall indemnify the Contractor for claims for all liability for personal injury, including death, and property damage arising out of any act or omission on the part of the Contractor or any of his servants or agents during the operations under this Contract. The Contractor shall forward a satisfactory copy of such insurance policy to the Municipality with the executed contract.

Such liability insurance shall be with limits of not less than one million dollars ($1,000,000) inclusive per occurrence for bodily injury, death, and damage to property including loss of use thereof.

ARTICLE 31. VEHICLE AND EQUIPMENT INSURANCE

The Contractor shall take out and keep in force until the date of completion of the specified operations under this Contract, to the satisfaction of the Inspector, a policy of collision and fire insurance coverage in respect to all vehicles and equipment operated by him under the Contract of sufficient amount to permit the rapid repair or replacement of the vehicles or equipment and to ensure continuation of operations under the Contract and a policy of public liability insurance for death or injury and property damage.

Such insurance shall be with limits of not less than one million dollars ($1,000,000) inclusive per occurrence for bodily injury, death and damage to property.

ARTICLE 32. BUILDING FIRE INSURANCE

The Contractor shall take out and keep in force until the date of completion of the specified operations under this Contract, to the satisfaction of the Inspector, a policy of fire insurance coverage in respect

of all buildings and equipment used by him under the Contract of sufficient amount to permit rapid repair or replacement to ensure continuation of operations under the Contract.

ARTICLE 33. WORKMEN'S COMPENSATION INSURANCE

The Contractor and his Subcontractors shall satisfy the workmen's compensation insurance according to the legal requirements of the Northwest Territories and the Contractor and his Subcontractors shall maintain workmen's compensation insurance for all his employees.

ARTICLE 34. BUSINESS LICENSE

The Contractor and his Subcontractors shall be in possession of a valid business license for the Municipality.

ARTICLE 35. PERMIT FEES AND TAXES

The Contractor shall pay for all necessary permit fees or taxes payable by him in the performance of the Contract and undertakes not to make any claim for refund of permit fees or taxes paid by him or any Subcontractor unless such refund is specifically authorized under any regulations.

ARTICLE 36. LAWS

The Contractor shall at all times during the operations under this Contract, observe all the provisions of the applicable Federal, Territorial or Municipal regulations, codes and ordinances.

ARTICLE 37. TIME AND SERVICE TO THE COMMUNITY ARE OF THE ESSENCE

Time and service to the Community are of the essence in the prompt carrying out of the approved scheduled operations under the Contract.

ARTICLE 38. NON-FULFILLMENT OF CONTRACT

If the Contractor fails or neglects to commence or to carry out the operations specified under this Contract or should the Contractor become bankrupt or insolvent, commit any act of insolvency, abandon the operations or fail to observe and perform any of the provisions of the Contract, of which the Inspector shall be the sole judge, then in any of such cases, the Inspector may notify him to discontinue the operations under the Contract and the Municipality may then employ such means as it may deem necessary to continue providing Municipal services in such case the Contractor shall have no claim for further payment in respect of work performed and no claim against the Municipality for any loss or damage caused by or resulting from the operations being taken out of the

control of the Contractor, but the Contractor shall be chargeable with and shall remain liable for all loss, damage, expense or cost which may be suffered by the Municipality by reason of such default, bankruptcy, insolvency or act of insolvency. If the said loss, damage, expense or cost exceeds the sum which would have been payable under the Contract if the same had been completed by the said Contractor, the Contractor or his surety shall pay the amount of such excess to the Municipality and such amount or any portion thereof may be deducted from any monies due or to become due to the Contractor.

ARTICLE 39. LOSSES AND DAMAGES

Except as otherwise provided for in the Contract, all loss or damage occasioned by or resulting out of the operations under the Municipal Services Contract or from the normal action of the elements or from any reasonable foreseeable circumstance in the prosecution of the same or from any normal difficulties which may be encountered in the prosecution of the same, having regard to the nature thereof, shall be sustained and borne by the Contractor at his own expense.

ARTICLE 40. WAIVER OF CONDITIONS AND TERMS

No waiver of any condition or term of this Contract in respect of any occasion of breach or default shall constitute a general waiver of such condition or term on or in respect of any other occasion, and the Municipality shall have the right to pursue each and every remedy to which it may resort under or in respect of this Contract without being deemed to have elected to forego any other such remedy.

ARTICLE 41. PRICE FOR OPERATIONS CARRIED OUT

The Contractor shall accept the compensation as herein provided in full payment for furnishing all necessary materials, labour, tools, equipment, supplies and other incidentals required for performing all operations under the Contract.

ARTICLE 42. MONTHLY INVOICE

A monthly invoice shall be prepared and certified by the Contractor. The invoice shall indicate the number of units serviced, the appropriate quantities of service and any other supporting information deemed necessary by the Inspector, and the value thereof according to the Schedule of Prices and terms of the Contract. The monthly invoices will be delivered to the Inspector by the Contractor within seven (7) days after the end of the payment period.

The value of the monthly invoice shall be determined by the appropriate quantity multiplied by the unit price in respect of the item as set out in the Schedule of Prices excepting where the unit price is a lump sum in which case the monthly payment shall be one twelfth (1/12th) of the annual value for the item.

ARTICLE 43. ANNUAL INVOICE

Where a minimum annual charge or guaranteed quantity is provided for in the Schedule of Prices and terms of the Contract, the Contractor shall, at the end of each year of operations, prepare an annual summary of the total value for the services provided in the past year based on the unit price charge and the actual quantities of service and the total annual value for the services based on the minimum annual charge or guaranteed quantities as provided for in the terms of the Contract and the Contractor shall certify the annual summary. The annual summary shall be delivered to the Inspector within 30 days after the end of the year of operations. The Contractor shall supply any supporting information deemed necessary by the Inspector.

ARTICLE 44. PAYMENT BY MUNICIPALITY

Upon receipt of an invoice certified by the Contractor and subject to the approval and certification of the Inspector and any withholding of liquidated damages, contract claims, legal demands, loss or damages, the Municipality shall pay to the Contractor the amount due.

ARTICLE 45. ADDITIONAL PAYMENTS

Unless specified to the contrary no additional payments will be made to the Contractor to cover increased operational or capital costs except as provided elsewhere for approved renegotiated prices to allow for increased or decreased numbers of units serviced, quantities involved, revised hauling distance and additional or modified services to be provided.

ARTICLE 46. BOOKS, PAYROLLS, ACCOUNTS AND RECORDS

The Contractor shall maintain and keep sufficient complete and accurate books, payrolls, accounts and records relating to the operations under the Contract to permit the verification and audit thereof and he shall have no claim for repayment unless such books, payrolls, accounts and records have been so maintained and kept.

ARTICLE 47. RIGHT TO AUDIT

The Municipality or the Government of the Northwest Territories or both may inspect or audit the books, payrolls, accounts and records during

the period of the Contract or at any time thereafter as deemed necessary and the Contractor shall provide certified copies of any such material whenever requested by the Municipality or the Government of the Northwest Territories.

The Contractor shall file with the Municipality forthwith upon appointment of eachg Subcontractor, a consent and convenant of each Subcontractor under seal by which the Subcontractor agrees to the provisions of this subsection the same way as if the subsection read "Subcontractor" for "Contractor".

SECTION D

SUPPLEMENTARY GENERAL CONDITIONS

Include any supplementary conditions to modify or supplement the General Conditions. Supplementary conditions should not be added here if they more properly belong in the General Requirements of the Specifications. Supplementary General Conditions take precedence over General Conditions therefore be careful when you write these.

The General Conditions are hereby revised as follows:

Indicate any deletions or substitutions. Number each Article starting with number one.

The following Articles are hereby added to the General Conditions:

Indicate any additional Articles. Continue the numbering of Articles from above.

SECTION E

SPECIFICATIONS

DIVISION	1.	GENERAL REQUIREMENTS
DIVISION	2.	DELIVERY OF WATER
DIVISION	3.	COLLECTION AND DISPOSAL OF PUMPOUT SEWAGE
DIVISION	4.	COLLECTION AND DISPOSAL OF HONEYBAGS/BUCKET SEWAGE
DIVISION	5.	COLLECTION AND DISPOSAL OF GARBAGE

NOTES ON SECTION E

1. General

This Section describes the actual operations and the services to be provided. It is broken into General Requirements, which are common to all services, and separate Divisions for each type of trucked municipal service. Because this Section is the most specific, you will have to fill in a number of blanks, select options and make changes to reflect your requirements and needs.

2. Division 1 - General Requirements

Most of these Articles are optional. You should consider each of them to see if they are appropriate for your contract and method of providing services. Many of the Articles provide the framework for an alternative or system without requiring its use. For example, Articles 1.9 and 1.10 specify the requirements if the Municipality provide vehicles, equipment or buildings for use by the Contractor. Other Articles provide alternative methods such as for adjusting prices and scheduling service. A number of the Articles are provided to stimulate you to think about them. For example, Articles 1.6 and 1.7 on standby vehicle and garage requirements.

3. Division 2, 3, 4 and 5 - Service Requirements

These Divisions provide the detailed requirements on the actual operations. Each Division contains articles on the following:

(1) Method and standard of operation
(2) Schedule of service
(3) Vehicle performance criteria
(4) Sanitary requirements of the operation
(5) List of Municipality provided vehicles, materials and equipment
(6) Method and basis of payment

Articles are also provided for items specific to each service.

Of particular concern will be the basis of payment. A number of alternative methods have been provided for you.

SECTION E

SPECIFICATIONS

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SPECIFICATIONS

DIVISION 1 - GENERAL REQUIREMENTS

1.1 SUBMISSION OF SCHEDULE OF THE SERVICE AND EQUIPMENT WITH TENDER

This article is only necessary when the Municipality does not specify the schedule and you want the bidder to submit a schedule.

For a Tender the Contractor shall submit, with his Tender, a proposed schedule of operations and equipment to be used in the carrying out of the various operation in order to provide an efficient service to the Municipality.

1.2 SCHEDULE OF SERVICE

This article provides general guidelines for the schedule of service.

Within one month of commencement of operations the Contractor shall submit for approval by the Inspector, a schedule of service listing the days and times when normal service will be provided to each building unit. This schedule may be made available to residents, tenants or landlords. All changes to the approved schedule of service must be approved by the Inspector and interested parties duly notified of any significant changes involved.

Normal service to each customer shall be provided on the same day or days of the week. The days of service shall normally be on the working days of the week, Monday to Friday, but may be modified upon approval of the Inspector. The time of service shall be at such periods of the day as shall be directed by the Inspector and shall be effected so as not to be or become a nuisance or injurious to health.

When legal holidays occur on a regular working day the scheduled service that would have been made on that day will be made the working day preceeding or following the holiday, as directed by the Inspector.

1.3 MONITORING OF THE CONTRACT

This article is essentially a repeat of the General Conditions Article 10.

The Municipality will appoint an Inspector to inspect and monitor the operations under this Contract being carried out by the Contractor to ensure that it meets the requirements outlined in the Contract and the approved schedule of service and equipment. The Contractor shall at all times cooperate with the Inspector or his authorized agent and shall make all relevant information available for inspection.

1.4 REGISTERING OF REQUESTS FOR SERVICE AND COMPLAINTS

This article requires the Contractor to record complaints, but the Municipality deals with the complaints.

The Contractor is to keep an up-to-date register of all request for service and complaints covering date, time, source and substance of the request or complaint together with a full record of action taken to provide the service or answer the complaint. This complete register is to be available at all times for review by the Inspector.

1.5 VEHICLES AND EQUIPMENT

This article contains general information on vehicles and equipment and is probably relevant to all contracts. Note that it gives the Inspector the authority to require the replacement or repair of deficient equipment.

It is not the intention of the Specifications to limit or dictate the type or manufacture of vehicles the Contractor proposes to use. The Contract is a performance contract only and it is the responsibility of the Contractor to provide efficient and continuous service to the satisfaction of the Municipality. However, the Contractor shall maintain all vehicles and equipment in good repair and in clean condition at all times. Vehicles and equipment which are deemed by the Inspector to be in poor repair to the extent that it interferes with the proper and efficient operations under the Contract shall be repaired or replaced by the Contractor.

All vehicles shall be capable of operating efficiently on municipal roads and under adverse conditions at maximum rated payload. The axle loadings of vehicles shall not exceed 3000 kilograms for a single axle or 2500 kilograms for a dual axle or any values specified in Municipal By-Laws. All vehicles shall be equipped with all standard safety devices for the protection of the operating personnel.

1.6 STANDBY VEHICLE REQUIREMENT

Having at least one standy-by vehicle available is critical to ensuring that service is not interrupted. This can be an expensive requirement, especially in a small community where extra or old equipment is not available for emergency use. Consider the consequences of vehicle failure and weigh these against the extra costs. This requirement is generally recommended and should only be relaxed for good reasons.

The Contractor shall prove access to one more vehicle than is necessary to provide operations during normal working hours. This extra vehicle shall at all times be in fully operable condition and repair and capable of providing service in accordance with the requirements in this Contract.

1.7 GARAGE REQUIREMENT

This garage requirement is recommended for N.W.T. locations and should only be relaxed for good reasons.

In order to maintain reliable service, garage space shall be available to the Contractor for all vehicles being used to provide services under this Contract.

1.8 INSPECTION PRIOR TO COMMENCEMENT

Two weeks prior to the commencement of the Contract the Contractor shall make available the vehicles, materials and equipment necessary for the operations. If in the opinion of the Inspector the Contractor is not prepared at this time to commence operations on the Contract commencement date, the Municipality may terminate the Contract and make alternate arrangements.

1.9 USE AND MAINTENANCE OF MUNICIPAL VEHICLES AND EQUIPMENT

Even if you want the Contractor to supply all the vehicles and equipment you can leave this Article in. You must specify who will maintain, license and fuel the Municipal vehicles. If the Municipality is to provide standby vehicles and equipment, you should state this.

Should the Contract be awarded on the basis that the Municipality will arrange to provide vehicular equipment the Contractor shall be responsible for supplementary vehicles for providing service and for the use of his administrative staff and supervisors.

Vehicles shall not be used for any other purpose other than the provision of services under this Contract. Vehicles will not be permitted to remain at the operators place of residence overnight, but shall be returned to a designated storage area.

The vehicles made available for the use of the Contractor must be routinely maintained by him to the satisfaction of the Inspector. The Contractor will carry out daily checks on brakes, steering mechanism, oil levels, fuel and tires. A vehicle log book shall be maintained by the Contractor for each vehicle and shall contain daily mileage, fuel and oil use and maintenance and repairs. At the termination of the Contract all vehicles must be returned to the Owner in good operating and physical condition, reasonable wear and tear excepted.

Where vehicles and equipment that are owned or are the responsibility of the Municipality are used by the Contractor, it is the Contractors responsibility to ensure that vehicles and equipment are operated in accordance with manufacturers operating instructions and good operating procedures. The Contractor will report all equipment defects to the Inspector and not operate such equipment when to do so may cause additional damage.

The following subsections cover the maintenance, repairs license, insurance and fuel for Municipality provided vehicles. You could combine them into the Municipality and the Contractor provided items.

***

Select either Option A or B depending on who you want to maintain the vehicles. In some cases you may want the Contractor to assist in the maintenance.

The **[A: Contractor] [B: Municipality]** shall be responsible for the maintenance and repairs of Municipality provided vehicles for this Contract. ***

Select either Option A or B depending on who you want to provide the license.

The **[A: Contractor] [B: Municipality]** shall be responsible for the licensing of the Municipality provided vehicles for this Contract. ***

Select either Option A or B depending on who you want to insure the vehicles.

The **[A: Contractor] [B: Municipality]** shall be responsible for providing insurance for the Municipality provided vehicles for this Contract. ***

Select either Option A or B depending on who you want to supply the fuel for the vehicles. If the Contractor has to buy the fuel from the Municipality then add a sentence to indicate this.

The **[A: Contractor] [B: Municipality]** shall be responsible for providing appropriate fuel to operate Municipality provided vehicles for this Contract. ***

1.10 USE AND MAINTENANCE OF MUNICIPAL BUILDINGS

Even if you want the Contractor to supply all the buildings you can leave this article in.

Should the Contract be awarded on the basis that the Municipality will arrange to provide the Contractor with buildings for the storage, maintenance and repair of vehicles required under this Contract, such buildings are not to be used for other operations without the express prior approval of the Municipality. Upon termination of the Contract, the Contractor shall return the buildings to the Municipality in the same condition as received, reasonable wear and tear excepted.

Select either Option A or B depending on who you want to pay for operating the buildings. You can separate these items if necessary.

The **[A: Contractor] [B: Municipality]** shall be responsible for providing heat, electricity and fire insurance for buildings provided by the Municipality for this Contract.

However, where the Municipality is responsible for providing heat, electricity and fire insurance, the Contractor shall be backcharged the additional cost if excessive heat, use of electricity or supplementary fire insurance premiums resulting from the actions or method of operation of the Contractor, his servants or agents.

1.11 PERSONNEL AND EMPLOYMENT CONDITIONS

This local hiring statement is loose. You can add more teeth to it if you wish. The conditions of employment are meant as a reminder to the Contractor.

In carrying out the operations covered by this Contract, the Contractor, shall employ personnel who are residents of or living in the vicinity of the Municipality wherever practical and consistent with reasonable efficiency and without any discrimination whatsoever.

Wage scales, fringe benefits and terms of employment for the various categories of employees should be in accordance with local practice for equivalent operations. The Contractor must comply with the conditions of employment outlined in the Ordinance for Labour Standards and Regulations in the Northwest Territories, as modified from time to time.

1.12 PROTECTIVE CLOTHING

Protective clothing, including gloves, shall be provided for sewage, honeybag and garbage service personnel, who shall put such protective clothing on at the start of work and remove it and leave it at the Contractor's establishment at the end of each work period. The Contractor

is responsible for cleaning clothing as needed and for taking all reasonable steps to prevent the spread of contamination via this clothing. If personnel must change from sewage or garbage service to work on water delivery, they must change clothing and thoroughly wash their hands before starting work on the water delivery.

1.13 ROAD MAINTENANCE AND SNOW REMOVAL

The Municipality shall assume the responsibility of all municipal road maintenance and snow removal necessary for the road access of the service vehicles for the operations under this Contract.

The Municipality shall provide and maintain access road(s) leading to the truck water fill point(s) and to pumpout sewage, bagged/bucket sewage and garbage disposal sites in condition adequate to permit use thereof by the Contractor.

The Contractor shall notify the Municipality immediately where the carrying out of any part of the Municipal Services Contract is restricted due to inadequate or delay in road maintenance or snow removal by the Municipality so that the situation can be corrected promptly.

1.14 SERVICE TO CUSTOMERS

At all times the Contractor shall attempt to provide service, however, the Contractor is understood not to be responsible for providing service to customer who do not conform to the Municipal By-Laws with respect to equipment, access, location and type of connections and containers or any other requirements related to Municipal Services, as modified from time to time.

The Contractor shall report any infractions of the appropriate Municipal By-laws to the Inspector.

1.15 NEGOTIATION OF FUTURE PRICES

If the Schedule of Prices does not contain fixed prices for the whole period of the Contract,a term outlining how future prices will be determined must be provided. This article allows for the negotiation of contract price changes due to inflation. If you wish to deal with inflation in some other way, for example an index method, you must specify the method and formula to be used.

Where the Schedule of Prices does not contain prices for the full duration of the Contract, the Contractor shall proceed with the operations and payment will be made on the basis of the current or latest prices set forth in the Schedule of Prices in the Contract except as follows below.

In the case of changes in the Contractor's costs of operation due to changes in price levels for labour, materials, equipment and, interest charges or other items due to inflation or deflation, then upon sixty (60) days written notice to the other party negotiations shall be carried out to determine an agreeable revised Schedule of Prices. The revised prices shall be based on actual costs and, if requested, the Contractor shall furnish any information, documents or financial statements deemed necessary by the Inspector.

1.16 REVISION OF PRICES

This is a general terms that would allow negotiation of prices for any reason.

Where the Municipality or the Contractor considers that there have been changes in the quantity of operations, scope or nature of the operations or costs of operations due to inflation or deflation, then upon the written request of either party negotiations shall be carried out to determine agreeable compensation or changes in the Schedule of Prices.

The basis for any compensation and changes in the Schedule of Prices shall be the actual change in costs of operation. The Contractor shall furnish information, documents, records or a financial statement if deemed necessary by the Inspector. The Contractor shall continue to provide services specified in the Contract without prejudice and without waiting for any decision from the Inspector.

1.17 CANCELLATION OF CONTRACT

This cancellation article may be included but it is usually only applicable to short term contracts.

This Contract may be cancelled by either party upon sixty (60) days written notice delivered to either party at their proper address.

1.18 EXTENSION OF CONTRACT

This article may be included to indicate your desire to possibly extend the term of the Contract.

At the end of the term of this Contract, providing both parties are agreeable, the Contract shall be extended for _____ years. ***
[years]

1.19 ADVANCE PAYMENT

This option is generally only necessary to attract new and small Contractors. The amount may be adjusted.

Advance payment equal to one twelfth (1/12th) of the annual total contract price may be requested by the Contractor to be used as working capital to get started.

1.20 BONUS

A bonus may be provided to reward exceptional service or when the Municipality will gain materially from exceptional service. Due to the subjective nature of a bonus it is highly discouraged.

In addition to the payments for operations under this Contract, the Municipality may pay a sum equal to one percent (1%) of the total annual contract price, by way of a bonus, for exceptional services rendered by the Contractor.

1.21 LIQUIDATED DAMAGES FOR COMPLAINTS

The use of liquidated damage must be carefully considered. Any change for damages or poor service should be for actual compensation, rather than a penalty. The assessment of liquidated damages may be subjective and the payment may not resolve the problem. For these reasons the use of liquidated damages is highly discouraged.

If the Contractor should fail to provide the service specified under the Contract and if the Inspector, after a thorough joint investigation, shall determine that any registered customer complaint is entirely as the result of negligent operations by the Contractor, his servants or agents without satisfactory extenuating circumstances, especially in cases of repetition of complaints, the Municipality may assess the Contractor liquidated damages in the amount of twenty-five dollars ($25.00) per incident so determined as reimbursement for lack of service specified under the Contract. The decision of the Inspector in writing following the investigation shall be final. Liquidated Damages so assessed shall be deducted from payments due to the Contractor under this or any other contract.

1.22 SERVICES PROVIDED ON REQUEST BASIS

The method of operations used in this Guideline is service provided at a specified frequency. If water delivery and/or sewge pumpout service is to be provided "on demand" for some or all of the customers, the method of service must be specified. Specify the services to be provided and the responsibility for service. The following are two ways to do this.

[A: Services shall be provided on a request basis. The Contractor shall provide services within ____ days of request for service by authorized customers].
[days] *

[B: The Contractor shall provide services with sufficient frequency to ensure that customers do not run out of water and that customer sewage holding tanks do not overflow].

DIVISION 2 - WATER DELIVERY SERVICE

This Division describes the water delivery service. Include this Division only if water delivery is to be included in your Contract. Many items in this Division will be particular to the conditions and requirements in your Municipality.

2.1 PROVISION OF WATER

Treated potable water for fire fighting under the terms of this Contract will be made available to the Contractor free of charge. Treated potable water for delivery to building units under the terms of this Contract will be made available to the Contractor.

[A: free of charge.] ***
[B: for a unit price charge of _____ dollars per cubic meter or part thereof.] ***
[C: at the current unit price as specified in the Municipality By-laws.] ***

Select either Option A, B, or C. Options B and C will be applicable when the Contractor charges the customer directly for regular or non-scheduled service but the Contractor must be invoiced every month or have this cost for water subtracted from his Invoice.

2.2 PICK UP OF WATER

The Contractor shall be responsible to pick-up water at the water supply point(s) designated by the Municipality. Present water supply point(s) are as follows:

_____ ***
[indicate the location and description]
_____ ***
_____ ***
[indicate if Plans are provided that show the locations.]

2.3 DELIVERY OF WATER

The Contractor shall in the operation of water delivery service:

(a) maintain a regular and efficient water delivery service to all building units and within the designated service area approved by the Municipality;

(b) delivery to each customer at a single delivery a quantity of water reasonably specified by the customer and sufficient quantity to fill the water storage tank within the building units;

(c) be prepared to meet demands for increased and non-scheduled service;

(d) work with care to avoid any damage to property of the Municipality and the customers;

(e) shall not do or permit any act or thing which may cause any contamination of water and risk to public health;

(f) work with care to avoid any spillage of water at the water supply point, building units or other locations and promptly remove all puddles or ice formed as a result of any spillage;

(g) obtain, prepare and maintain receipts and records of all water deliveries based on metered readings to the satisfaction of the Municipality:

(h) duly observe and comply with all relevent statutes; Ordinances, rules, regulations and by-laws.

2.4 SCHEDULE OF SERVICE

Water delivery service shall be provided to each customer _____ day(s) per week with each delivery separated by at least _____ days. ***
***

Fill in the number of days. Delivery is usually required two days (times) per week with at least two days spacing. Add any other schedule reuirements that you have. For example, if non-residential buildings are to get more frequent service. You can also specify the days that you want service provided to specific areas of the Municipality. You could also specify the schedule for certain or for all customers. This detailed information could be provided in an attached list.

2.5 WATER DELIVERY VEHICLES

The vehicle specifications in this Article are meant to indicate the performance required and are not meant to limit the type or manufacture of vehicles used to perform the water delivery service. It is the Contractor's responsibility to ensure that vehicles he provides meet the specifications in this Article.

The vehicle filling and discharge system must be compatable with the equipment and fittings provided for at the water supply point and at customer building units and as may be indicated in Municipal By-laws.

Capacity

Water delivery vehicles should have a minimum nominal capacity of 4.5 cubic meters.

Equipment and Freeze Protection

The water delivery vehicles should be fully equipped with all standard accessories, including delivery pumps and delivery hose, and separate siamese twin outlets for fire fighting tanker service. The water meter, delivery pump, reel and hose equipment should be housed in a heated compartment on the vehicle. Special consideration should be given to the arrangement of piping, valves, pumps, appurtenances and water recirculation and heating system to prvent freezing. The tank and equipment compartment should be insulated with a near hydrophobic insulation; such as polyurethane, and the insulation covered by a protective metal skin. Delivery and suction hoses should be low temperature type.

Pumping

Pumping and delivery equipment should be powered by an independent hydraulic system comprising a power takeoff and hydraulic motor driving the pump and hose reel unit.

The pump should have a minimum rated capacity of 0.18 cubic meters per minute when delivering through 30 meters of 38 millimeter delivery hose.

Sufficient length of delivery hose should be provided with each vehicle forthe proper delivery of water to all building units serviced.

Water meter

An accurate water meter shall be provided and maintained on the water delivery vehicles to measure the quantity of water delivered to each customer.

Tanks

Tanks on water delivery vehicles should be provided with baffle plates to reduce surge action. The tank shall be equipped with manholes to allow entrance for periodic cleaning operations. Tanks must be treated and coated with a non-toxic rust and corrosion preventative material approved for mobile potable water tanks as per Canadian Government Specifications Board - Specification Number 1-GP-127C.

The interior of steel tanks should be sandblasted and/or coated with a nonsoluble asphalt base bitumen of a type approved for coating the interior surfaces of tanks carrying potable water, or other approved finish or process, such as "Lithcoted".

Corrosion Prevention

Parts, fittings and piping in contact with water shall be of corrosion resistant material not affecting the potability of water. Where dissimilar materials are utilized, effective means should be taken to prevent objectionable corrosion from electrolytic action.

2.6 SANITARY OPERATION

The Contractor shall ensure that employees who deliver water are free from contamination. Personnel employed on sewage or garbage service shall not be employed for water delivery until they have changed their external clothing and they have been required to thoroughly wash their hands and otherwise remove any contamination.

Water delivery nozzles and hoses shall not be exposed to contamination by laying them on or dragging them on the ground.

Water delivery vehicles shall be kept clean, and water haulage tanks shall be cleaned and disinfected at least once every thirty days with a chlorine solution.

2.7 FIRE FIGHTING ASSISTANCE

The water delivery vehicles shall be left filled at the end of each day and at all times be maintained in a state of readiness and available to be used in case of fire and the Contractor shall without delay provide water for fire fighting purposes by driving water delivery equipment to the fire and operating the equipment as directed by the Chief of the Fire Department or his representative.

2.8 MUNICIPALITY PROVIDED VEHICLES, MATERIALS AND EQUIPMENT

If the Municipality will not be providing any itmes you can make a statement to that affect, leave out this sub-section or insert "NIL".

The Municipality shall provide the following vehicles, materials and equipment for use by the Contractor to provide water delivery service operations under this Contract:

For vehicles and equipment, specify the type, size, model, make and year. For buildings, specify the function, size, location and any other relevant information. Specify if any items are for stand-by use only.

2.9 BASIS OF PAYMENT

Subject to the due performance and observance by the Contractor of the terms and conditions of this Contract, the Municipality shall pay to the Contractor, on receipt of the Contractors certified invoice, subject to approval by the Inspector for payment, the amount due.

The basis of payment shall be the current prices set out in the Schedule of Prices.

Contractor's Invoice

Specify any special requirements or format for the contractors Invoice.

Quantity of Water Delivered

The quantity of water delivered shall be the summation of all water deliveries to approved customers as measured by the vehicle water meter and recorded by the Contractor. If there is no water meter reading or if there is any dispute or doubt as to the quantity of water delivered, the decision of the Inspector shall be final.

The method of payment detailed here and in the Tender Form must be compatable. There are many ways of paying the Contractor. The method you choose should be fair and simple, reflect the cost of delivering water and encourage efficiency. The following are typical method of payment.

Monthly Payment

The Contractor shall be paid on a monthly basis for all operations specified for the delivery of water.

Payment for Fire Fighting Assistance

The basis of monthly payment for all operations specified for standby and assistance in the fighting of fires shall be one-twelfth (1/12) of the quoted current annual rate set out in the Schedule of Prices.

Payment for Regular Service

In this subsection you should specify the method of determining the payments for your Contract. A few typical example methods have been provided to assist you. Select the appropriate one or write up your own.

The following describes the payment for regular service where there is only one unit price.

The basis for monthly payment shall be the current unit price(s) set out in the Schedule of Prices for the quantity of water delivered to approved customers.

The following describes the basis of payment when there is a delivery charge and a quantity charge.

The basis of monthly payment shall be the current unit prices set out in the Schedule of Prices for the quantity of water delivered and the number of deliveries made to approved customers.

The following describes the basis of payment when there is a guaranteed annual quantity or payment.

The Contractor shall be paid the higher of the total annual charges based on the actual quantity of water delivery service and the annual charge for delivery of the guaranteed annual quantity of water service or the minimum annual payment set out in the Schedule of Prices.

2.10 NON-SCHEDULED SERVICE

Include this subsection only if the Municipality will not pay for non-scheduled service. The Contractor must collect this from the customers. You may wish to specify that the price must be approved by the Inspector and/or that the price not exceed 1.5 times the Tender price to allow for overtime and any inconvenience.

The Municipality will not be responsible for payment for any non-scheduled water delivery service to customers. The Contract shall be responsible to provide reasonable customer requests for non-scheduled service and to invoice the customers directly for such non-scheduled service.

DIVISION 3 - COLLECTION AND DISPOSAL OF PUMPOUT SEWAGE

This Division describes the pumpout sewage service. Include this Division only if pumpout sewage is to be included in your Contract.

3.1 PUMPOUT SEWAGE SERVICE

The Contractor shall in the collection and disposal of pumpout sewage:

(a) maintain a regular and efficient sewage holding tank pumpout service to all building units and within the designated service area approved by the Municipality;

(b) be prepared to meet demands for increased service and non-scheduled service;

(c) work with care to avoid any damage to property of the Municipality and the customers;

(d) work with care to avoid any spillage of sewage at the building units, sewage, disposal site or other locations;

(e) shall not do or permit any act or thing which may cause any contamination of water and risk to public health;

(f) obtain, prepare and maintain receipts and records of all pumpout sewage services based on building units serviced and estimated quantities of sewage disposal of;

(g) duly observe and comply with all relevant statutes, ordinances, rules regulations and by-laws.

3.2 SCHEDULE OF SERVICE

Pumpout sewage service shall be provided to each customer _____ day(s) per calendar week.

Fill in the number of days. Collection is usually required one day per week. Municipal By-laws generally specify the minimum building holding tank size so that service is only required once per week. Add any other schedule or frequency requirements that you want.

3.3 PUMPOUT SEWAGE DISPOSAL

The Contractor shall discharge the sewage collected from building unit sewage holding tanks at the pumpout sewage disposal site(s) designated by the Municipality. Present pumpout sewage disposal site(s) are as follows:

[indicate the location and type of sewage disposal sites]

[indicate if Plans are provided that show the locations.]

3.4 SANITARY OPERATION

The sewage collection vehicles shall be kept clean to the satisfaction of the Inspector and the Medical Health Officer.

The Contractor shall ensure that all employees who collect sewage are supplied with separate exterior working clothing and facilities to wash and clean up.

The Contractor shall take care to ensure that sewage is disposed of only at the designated sewage disposal site. Any discharge or spillage at any other location shall immediately be collected and cleaned up and disinfected by the Contractor to the satisfaction of the Inspector and the Medical Health Officer. The Contractor shall record and report any spillage of sewage over 50 litres.

3.5 PUMPOUT SEWAGE VEHICLES

The vehicle specifications in this Section are meant to indicate the performance required and are not meant to limit the type or manufacture of vehicles used to perform the pumpout sewage service. It is the Contractors responsibility to ensure that vehicles he provides meet the specifications in this Division.

The vehicle filling and discharge system must be compatable with the equipment and fittings provided for at the sewage disposal site and at customer building units and as may be indicated in Municipal by-laws.

Sewage collection vehicles should have a minimum nominal capacity of 4.5 cubic meters and shall be fully equipped with all standard accessories. A vacuum induction sewage tank system should be used.

The pumping equipment should have a minimum capacity of 350 litres per minute when pumping sewage and suitable to transfer solids up to 50 millimeters in diameter. Power should be supplied from a power take off on the vehicle drive.

The tank and equipment must be designed to facilitate ease of flushing and cleaning. Rapid coupling outlets and low temperature hoses should be provided.

3.6 MUNICIPALITY PROVIDED VEHICLES, MATERIALS AND EQUIPMENT

If the Municipality will not be providing any items you can make a statement to that affect, leave out this sub-section or insert "NIL".

The Municipality shall provide the following vehicles, materials and equipment for use by the Contractor to provide pumpout sewage service operations under this Contract:

For vehicles and equipment, specify the type, size, model, make and year. For buildings, specify the function, size, location and any relevent information. Specify if any items are for stand-by use only.

_____

_____

_____

_____

3.7 BASIS OF PAYMENT

The method of payment detailed here in the Specifications must be compatable with the method in the Tender Form and Schedule of Prices. There are many methods of paying the Contractor. The method you choose should be fair and simple, reflect the cost of providing pumpout sewage service and encourge efficiency. The following are typical methods of payment.

Subject to the due performance and observance by the Contractor of the terms and conditions of this Contract, the Municipality shall pay to the Contractor, on receipt of the Contractors certified invoice, subject to approval by the Inspector for payment, the amount due. The basis of payment shall be the current prices set out in the Schedule of Prices.

Contractors Invoice

Specify any special requirements or format for the Contractors Invoice.

Quantity of Sewage Collected

If the pumpout sewage vehicle is equipped with a meter the quantity of sewage collected shall be the summation of all sewage collections from approved customers as measured by the vehicle meter and recorded by the Contractor.

If no sewage meter is used, as is the usual case, the quantity of sewage collected shall be determined from the customer's water use. The following methods may be used:

(a) the metered water use for buildings with water meters;

(b) the truck metered water delivered to buildings supplied by trucked water delivery;

(c) for periods when no building water use is available, the average of the previous six months water use when a metered water use was available.

If no estimate of water use is available the quantity of sewage shall be estimated by the Contractor.

If there is no estimate of sewage quantity available or if there is any doubt or dispute as to the quantity of sewage the decision of the Inspector shall be final.

Monthly Payment

The Contractor shall be paid on a monthly basis for all operations specified for pumpout sewage service upon approval and certification of an invoice submitted by the Contractor to the Inspector.

Payment for Regular Service

In this subsection you should specify the method of determining payments for your Contract. A few typical example methods have been provided to assist you. Select the appropriate one or write up your own.

The following describes the payment for regular service when there is only one unit price.

The basis for monthly payment shall be the current unit price set out in the Schedule of Prices for the quantity of sewage collected from approved customers.

The following describes the basis of payment when there is a delivery charge and a quantity charge.

The basis of monthly payment shall be the current unit prices set out in the Schedule of Prices for the quantity of sewage collected and the number of collections to approved customers.

The following describes the basis of payment when there is a guaranteed minimum quantity or payment.

The Contractor shall be paid the higher of the total annual charges based on the actual quantity of sewage collection service and the annual charge for collection of the guaranteed annual quantity of sewage collection service or the minimum annual payment set out in the Schedule of Prices.

3.8 NON-SCHEDULED SERVICE

Include this subsection only if the Municipality will not pay for non-scheduled service. The Contractor must collect this from the customers. You may wish to specify that the price must be approved by the Inspector and/or that the price not exceed 1.5 times the Tender price.

The Municipality will not be responsible for payment for non-scheduled pumpout sewage service to customers. The Contractor shall be responsible to provide reasonable customers requests for non-scheduled service and to invoice customers directly for such non-scheduled service.

DIVISION 4 - COLLECTION AND DISPOSAL OF BAGGED/BUCKET SEWAGE

This Division describes the bagged/bucket sewage collection service. Include this Division only if collection service is to be included in your Contract.

4.1 DEFINITION OF BAGGED/BUCKET SEWAGE

Bagged or bucket sewage shall consist of all human excreta collected in bags (usually plastic) or buckets.

4.2 BAGGED/BUCKET SEWAGE SERVICE

The Contractor shall in the collection and disposal of bagged/bucket sewage:

(a) maintain a regular and efficient bagged/bucket sewage service to all building units and within the designated service area approved by the Municipality;

(b) be prepared to meet demands for increased service and non-scheduled service;

(c) work with care to avoid any damage to property of the Municipality and the customers;

(d) work with care to avoid spillage of bagged/bucket sewage at the building, sewage disposal site or any other location;

(e) shall not do or permit any act or thing which may cause any contamination of water and risk to public health;

(f) maintain records of all bagged/bucket sewage services based on building units serviced and number of bags/buckets collected;

(g) duly observe and comply with all relevant statutes, ordinances, rules, regulations and by-laws;

(h) shall not mix bagged/bucket sewage and domestic garbage together.

4.3 SCHEDULE OF SERVICE

Collection service shall be provided to each customer on at least _____ *** days per week with each collection separated by no more than _____ days. ***

Fill in the number of days. Collection is usually required 4 or 5 times per week with no more than 2 days between collections. Add any other schedule or frequency requirements that you want.

4.4 SUPPLY OF PLASTIC BAGS

Include this subsection only if plastic bags are used for the containment and collection of human excreta. Select Option A if the Contractor is to supply the bags and Option B if they are to be supplied by the Municipality. Note that in this example the Contractor distributes the bags.

***

[A: The Contractor shall be responsible for the supply of all plastic bags for the bagged sewage system. The bags shall be of a type and quality of material presently used in the area and capable of being carried by the top with 20 kilograms of content. The bags shall be not less than 55 by 60 centimeters and shall be plastic with a thickness of at least 2 mils.]

[B: The Municipality shall be responsible for the supply of all plastic bags for the bagged sewage system.]

The Contractor shall distribute plastic bags to customers and ensure that customers always have an adequate supply of plastic bags.

4.5 SUPPLY OF CONTAINERS FOR BAGGED SEWAGE AT BUILDINGS

Include this subsection only if the Contractor is expected to provide containers at the buildings for bagged sewage.

The Contractor shall provide containers to buildings for the storage of bagged sewage honeybags prior to collection. Containers must be clearly marked with an approved inscription on the side and lid to indicate the container is for bagged sewage honeybags only.

Usually an inscription like "HONEYBAGS ONLY" is required.

The Contractor shall be responsible for periodically cleaning and sanitizing the bagged sewage containers to the satisfaction of the Inspector and the Medical Health Officer.

4.6 SUPPLY, CLEANING AND DISTRIBUTION OF BUCKETS

Include this subsection only if buckets are used for the containment and collection of human excreta.

Select Option A if the Contractor is to supply the buckets and Option B if they are to be supplied by the Municipality. You may want to add some specifications on the bucket size, lids, quantity or other requirements.

The **[A: Contractor] [B: Municipality]** shall be responsible to provide the buckets for the bucket sewage collection system. ***

The following describes the operation when the Contractor must collect, empty and clean the buckets.

The Contractor shall exchange an empty bucket for each bucket collected from customers and he shall empty, clean and sanitize the buckets to the satisfaction of the Inspector and the Medical Health Officer.

4.7 BAGGED/BUCKET SEWAGE DISPOSAL

The Contractor shall discharge the bagged/bucket sewage collected from building units at the bagged/bucket sewage disposal site(s) designated by the Municipality. Present bagged/bucket sewage disposal site(s) are as follows:

_____ ***

[indicate the location and type of disposal site]

_____

_____

_____ ***

[indicate if plans are provided that show the locations]

Add any particular information about the disposal site or method. For example if bags are to be put into a pit, if the bags must be separated or if the buckets must be cleaned. Extra information will be required if the bags or buckets are to be discharged into a piped sewage system and must be thawed out first.

Add any special responsibilities or duties of the Contractor, such as periodically covering the bags with earth.

4.8 BAGGED/BUCKET SEWAGE VEHICLES

The vehicle specifications in this Section are meant to indicate the performance required and are not meant to limit the type or manufacture of vehicles used to perform the honeybag/bucket sewage service. It is the Contractors responsibility to ensure that vehicles he provides meet the specifications in this Section.

The bagged/bucket sewage collection vehicle shall be suitably covered and sealed so that any sewage that is spilled does not leak from the vehicle. Alternatively, bags may be transported in containers with sealed lids that are approved by the Inspector or an enclosed tank may be used.

The vehicle and equipment should be designed for easy cleaning.

The vehicle and equipment must be compatible with the arrangement and equipment at the customer building units and the disposal site and as may be indicated in Municipal By-laws. The vehicles shall be capable of operating efficiently on the municipal roads and access roads to the disposal site and building units.

4.9 SANITARY OPERATION

The Contractor shall be responsible for the cleaning and sanitizing of the bagged/bucket sewage collection vehicle to the satisfaction of the Inspector and the Medical Health Officer.

The Contractor shall ensure that all employees who collect bagged/bucket sewage are supplied with separate exterior working clothing and facilities to clean up.

The Contractor shall take care to ensure that bagged/bucket sewage is disposed of only at the designated disposal site. Any other discharge or spillage at any other location shall immediately be collected and cleaned up and disinfected by the Contractor to the satisfaction of the Inspector and the Medical Health Officer. The Contractor shall record and report any spillage of sewage of over 50 litres.

The Contractor is to note that honeybag/bucket sewage and domestic garbage are not to be stored or collected together.

4.10 MUNICIPALITY PROVIDED VEHICLES, MATERIALS AND EQUIPMENT

If the Municipality will not be providing any items you can make a statement to that affect, leave out this subsection or insert "NIL".

The Municipality shall provide the following for use by the Contractor to provide bagged/bucket sewage collection operations under this Contract:

For vehicles and equipment, specify the type, size, model and year. For buildings, specify the function, size, location and any other relevent information. Specify any items that are for stand-by use only.

_____

_____

_____

_____

4.11 BASIS OF PAYMENT

The method of payment specified here and in the Tender Form and Schedule of Prices must be compatable. The following are typical methods of payment.

Subject to the due performance and observance by the Contractor of the terms and conditions of this Contract, the Municipality shall pay to the Contractor, on receipt of the Contractors certified invoice, subject to approval by the Inspector for payment, the amount due. The basis of payment shall be the current prices set out in the Schedule of Prices.

Contractor's Invoice

Specify any special requirements or format for the Contractor's Invoice.

Quantity of Bagged/Bucket Sewage

The quantity of bagged/bucket sewage shall be the summation of the number of bag or bucket containers collected from approved customers as recorded by the Contractor.

If there is no quantity record or if there is any dispute or doubt as to the quantity of bagged/bucket sewage, the decision of the Inspector shall be final.

Monthly Payment

The Contractor shall be paid on a monthly basis for all operations specified for the collection of bagged/bucket sewage.

Payment for Regular Service

In this subsection you should specify the method of determining the payments for your Contract. A few typical example methods have been provided to assist you. Select the appropriate one or write up your own.

The following describes the basis of payment when there is only one unit price.

The basis of payment shall be the current unit price(s) set out in the Schedule of Prices for the quantity of bags/buckets collected from approved customers.

The following describes the basis of payment when there is a guaranteed annual quantity.

The basis of payment shall be the higher of the total annual charges based on the actual quantity of bags/buckets collected and the annual charge for collection of the guaranteed annual quantity of bags/buckets set out in the Schedule of Prices.

DIVISION 5 - COLLECTION AND DISPOSAL OF GARBAGE

This Division describes the garbage collection service. Include this Division if garbage collection is to be included in your Contract.

5.1 DEFINITION OF GARBAGE

Garbage shall include all refuse, waste or discarded material in the normal operation of a domestic dwelling, office, institute or commercial establishment. It does not include bulky or heavy waste products such as construction materials and junked cars.

5.2 GARBAGE SERVICE

The Contractor shall in the operation of garbage service:

(a) maintain a regular and efficient garbage collection service to all building units and within the designated service area approved by the Municipality;

(b) collect all domestic garbage deposited by customers neatly beside or in containers and located for pick-up in accordance with Municipal By-laws;

(c) not be responsible for collecting, removing or disposing of loose garbage or refuse other than that spilled, lost or scattered by his employees or agents or as may be provided by Municipal By-law;

(d) replace garbage containers and the lids to the approximate location where they were picked up;

(e) be prepared to meet demands for increased service and non-scheduled service;

(f) work with care to avoid any damage to property of the Municipality and the customers, including garbage containers;

(g) maintain records of all garbage collections including the types of buildings serviced and frequency of collection and any other information requested by the Inspector;

(h) duly observe and comply with all relevent statutes, Ordinances, rules, regulations and By-laws.

Additional Clean Up Services

You may want to include this subsection on additional clean-up services.

The Contractor shall provide additional services for special clean-up campaigns, public functions or events or other times as requested by the Inspector.

Add this sentence if the Contractor will be paid for this service.

The Inspector shall establish any reimbursement to the Contractor for any increased costs for this additional service.

Collection from Public Containers

You may want to include this subsection on the collecting garbage from public containers that may be downtown, in parks or at other locations. This could be an additional cost item in the Contract prices.

The Contractor shall collect garbage from all public garbage containers specified and approved by the Municipality.

Provision for Recycling of Paper or Materials

You may want to include this subsection concerning recycling.

If requested, the Contractor shall cooperate with the Municipality in establishing a program to recycle paper or other materials. The Inspector shall establish any reimbursement to the Contractor for any increased costs for this service.

Toxic or Hazzardous Waste

You may want to include some reference to the handling of toxic or hazzardous wastes. There are special handling and disposal requirements for these types of wastes to reduce the danger to people and to the environment.

The Contractor shall inform the Inspector of any known or suspected toxic or hazzardous wastes and shall not collect or dispose of such wastes without instructions from the Inspector.

5.3 SCHEDULE OF SERVICE

Garbage collection service shall be provided to residential customers _____ day(s) per week. ***

Residential collection is usually one day per week.

Garbage collection service shall be provided to non-residential customers _____day(s) per week. ***

Non-residential collection is usually two days per week but may be daily for some commercial operations, e.g. restaurants or stores.

Include any special services to customers that the Municipality will provide such as to hospitals, schools, etc.

Add as many categories of building types or uses that require a different frequency of service. Some categories are: commercial properties, institutional, licenced business firms, residential, apartments, etc. If there are many categories they could be put into a Table.

5.4 DISPOSAL OF GARBAGE

The Contractor shall dispose of all garbage collected at the garbage disposal site(s) designated by the Municipality. The present garbage disposal site is as follows:

_____ ***

_____

_____

[indicate the location and description of the disposal site]

Indicate if Plans are provided that show the location.

Include the following note only if you want the Contractor to burn the garbage.

The Contractor shall burn all garbage at the disposal site at least every thirty days as ground and wind conditions permit.

Include any special instructions for your situation such as if garbage is to be deposited in a special manner in a landfill or if the Contractor must maintain the disposal site.

5.5 SANITARY OPERATION

The Contractor shall keep the garbage collection vehicles clean to the satisfaction of the Inspector and the Medical Health Officer.

The Contractor shall supply exterior clothing to all employees involved with garbage collection and provide facilities for employees to wash and clean up.

The Contractor shall take care to avoid any spillage, loss or scattering of garbage at the building units or on route and shall promptly collect and clean up any spillage, loss or scattering of garbage by his employees or agents.

The Contractor shall maintain the garbage disposal site in a safe and orderly fashion. All garbage shall be disposed of within the boundaries of the disposal area and in a fashion and location specified by the Inspector.

5.6 GARBAGE COLLECTION VEHICLES

The vehicle specifications in this Division are meant to indicate the performance required and are not meant to limit the type or manufacture of vehicles used to perform the garbage collection service. It is the Contractor's responsibility to ensure that vehicles he provides meet the specifications in this Division.

The garbage collection vehicle should be equipped with a container or other apparatus that will facilitate efficient collection, removal and disposal of garbage without loss or scattering. Open or uncovered vehicles will not be permitted.

5.7 MUNICIPALITY PROVIDED VEHICLES, MATERIALS AND EQUIPMENT

If the Municipality will not be providing any items you can make a statement to that affect, leave out this subsection or insert "NIL".

The Municipality shall provide the following for use by the Contractor to provide garbage collection operations under this Contract:

For vehicles and equipment, specify the type, size, model and year. For buildings, specify the function, size, location and any other relevant information. Specify any items that are for stand-by use only.

5.8 BASIS OF PAYMENT

Subject to the due performance and observance by the Contractor of the terms and conditions of this Contract, the Municipality shall pay to the Contractor, on receipt of the Contractors certified invoice, subject to approval by the Inspector for payment, the amount due.

Contractor's Invoice

Specify any special requirements or format for the Contractor's invoice.

Quantity of Gargage

The following defines the quantity as the number of collections. Alternative methods are to count each container or to weigh each truck load.

The quantity of garbage shall be the summation of the number of garbage collection services provided to approved customers as recorded by the Contractor. If there is no quantity record or if there is any dispute or doubt as to the quantity of garbage services provided, the decision of the Inspector shall be final.

Monthly Payment

The Contractor shall be paid on a monthly basis for all operations specified for the collection and disposal of garbage.

Payment for Regular Service

In this subsection you should specify the method of determining the payments for your Contract. A few example methods have been provided to assist you. Select the appropriate one or write up your own.

The following describes the basis of payment when there are unit prices for collection from each building type.

The basis of payment shall be the current unit price(s) per collection set out in the Schedule of Prices for the number of garbage collections from approved customers.

The following describes the basis of payment when there is a guaranteed annual payment.

The basis of payment shall be the higher of the total annual charges based on the actual garbage collections and the guaranteed annual payment set out in the Schedule of Prices.

SECTION F

INFORMATION ON BUILDING UNITS AND QUANTITIES

NOTES ON SECTION F

1. General

In this Section you should include information about the building units that are to receive service. This information will be useful to the Bidder in estimating the scope of the work and in making up a bid price and schedule. The information should include the number of units requiring service and the types of buildings (houses, apartments, stores, office, etc.). An estimate of the quantity or volume of service, such as water use, would be helpful. For trucked water and pumpout sewage service you could indicate if the buildings have a pressure water system and the size of the water and sewage tanks in the buildings.

You should also include the annual totals for each service and for each category of customers or buildings for which the Contractor is paid differently.

Example Tables for building unit information are provided. The first Example Table includes the information for all the services in one Table. The other Example Tables provide more detailed information on each service. You can use these or make up your own.

Be sure to state that this information is for current customers and that it is not guaranteed to be correct or complete and is only included for the general information of Bidders.

INFORMATION ON BUILDING UNITS AND QUANTITIES

The following Tables and information on building units and quantities are provided only as general information to Bidders and the completeness or accuracy of the information is not guaranteed.

If you use the following Example Tables, fill in as much information as you have about each customer. For the water delivery and pumpout sewage Tables include the units for the tank size (e.g. cubic meters) and units for the volume of water delivered.

The following is a Legend that applies to the Example Tables.

LEGEND

Building Plumbing

G - Gravity water system in the building

P - Pressure water system in the building

Building Type

R - Residential building

I - Institutional building

C - Commercial building

ESTIMATES OF UNITS CURRENTLY REQUIRING SERVICES (for information only)

	Residential Units		Non-Residential Units			
	Number of Units	Quantity Per Unit/ Month	Number of Units	Quantity Per Unit/ Month	Number of Units	Quantity Per Unit/ Month
Water Delivery and Sewage Pumpout						
Water Delivery and Bagged/Bucket Service						
Water Delivery Only **[units]**						
Sewage Pumpout Only **[units]**						
Bagged/Bucket Sewage Service Only **[units]**						
Garbage Service **[units]**						

This Example Table includes building and quantity information for each of the services. Note that buildings with water and sewage, water only and sewage only services have been separated. Also, the buildings are separated into residential buildings and two categories of non-residential buildings. Note that the units for Quantity Per Unit/Month must be included.

INFORMATION ON BUILDING UNITS AND QUANTITIES FOR:

WATER DELIVERY

Location/Address	Building Plumbing		Water Delivery	Remarks/ Building Type
	G or P	Tank Size [units]	[units and time]	

INFORMATION ON BUILDING UNITS AND QUANTITIES FOR:

COLLECTION AND DISPOSAL OF PUMPOUT SEWAGE

Location/Address	Building Plumbing		Water Delivery	Remarks/ Building Type
	G or P	Tank Size [units]	[units and time]	

INFORMATION ON BUILDING UNITS AND QUANTITIES FOR:

COLLECTION AND DISPOSAL OF HONEYBAG/BUCKET SEWAGE

Location/Address	Remarks/Building Type/Pick-ups per year

INFORMATION ON BUILDING UNITS AND QUANTITIES FOR:

COLLECTION AND DISPOSAL OF GARBAGE

Location/Address	Remarks/Building Type/Pick-ups per year

SECTION G

PLANS AND FIGURES

NOTES ON SECTION G

1. General

This Section is for Plans and Figures. This might include a map of the Municipality showing the location of the water supply point, the garbage dump or the buildings that are to be serviced. Figures may be used to illustrate the type of service connections that are required in the Municipality. Photographs or other illustrative items may also be included in this Section.

APPENDIX G

EXAMPLE OF NEGOTIATED
TRUCKED SERVICES CONTRACT

NOTES ON PREPARING CONTRACT DOCUMENTS FOR A NEGOTIATED CONTRACT

1. General

The contract documents for a negotiated contract are essentially the same as for a tendered contract. However, items that deal specifically with the tender and the tendering process, for example the "Invitation to Tender", are not included. Because of this similarity, in this Appendix the items to be included in a negotiated contract are only identified, rather than repeated.

2. How to Prepare the Contract Documents

Before you start into preparing the Documents you should read Section 5 of the Guidelines, "Preparation of Truck Service Contracts". Information in that Section includes "Parts of a Negotiated Contract" and "How to Prepare Negotiated Contract Documents". The parts that are obtained from the Example Tender Documents in Appendix F include the following:

(1) Articles of Agreement
(2) General Conditions
(3) Specifications
(4) Schedule of Prices

These items have been written in a manner that makes them appropriate to a tendered or a negotiated contract.

These parts are extracted from the Example and any necessary or desirable additions, deletions and changes can be made.

To assist you in understanding and using these parts of a Contract, Notes have been provided at the start of the Example and at the start of each Section. These should be consulted.

Assemble other attachments, such as a Schedule of Operations, a List of Approved Customers, plans and figures, that you want to include in the Contract Documents.

3. Format

The format that is suggested for Contract Documents is essentially the same as for a Tendered Contract. That is, the actual contract, i.e. the Articles of Agreement, is very short but it contains a list of the items that are to be made a part of the contract. Each of these items must be given a designation, such as the following:

Schedule 1 - General Conditions
Schedule 2 - Specifications
Schedule 3 - Schedule of Prices

Each of these items, i.e. Schedules, must be titled as they are designated and they are attached to the Articles of Agreement.

APPENDIX H

EXAMPLE OF MUNICIPAL COUNCIL

AUTHORIZATION TO CONTRACT

NOTES ON AUTHORIZATION TO CONTRACT

1. General

This Appendix contains an example of a Municipal by-law to authorize the Mayor and the Secretary-Treasurer to execute (i.e. sign) an agreement on behalf of the Municipality. In this case the agreement is with a Contractor to provide municipal trucked services. The actual agreement would be marked "Schedule A" and attached to this By-law.

2. How to Use This Example

You can use this example as a guide to preparing an authorization to enter into a negotiated or tendered contract. Blank spaces for dates and names and Notes to assist you in understanding and using the example have been provided.

_____ of _____
[status] [community name]

BY-LAW No. _____
[number]

Being a by-law of the _____ of _____ in the
[status] [community name]
Northwest Territories to authorize the execution of an Agreement between

the _____ of _____ and _____
[status] [community name] [contractor's name]
for _____
[brief description of operations or contract title]

PERSUANT to Section _____ of the Municipal Ordinance of the Northwest Territories,

WHEREAS the _____ of _____ is desirous of entering
[status] [community name]
into an Agreement with _____ for the _____
[contractor's name]
_____
[brief description of operations or contract title]

NOW THEREFORE THE COUNCIL OF THE _____ of _____, in
[status] [community name]
regular session duly assembled, enacts as follows:

1. The Mayor and Secretary-Treasurer are hereby authorized forthwith to execute on behalf of the _____ of _____, by
[status] [community name]
affixing the Seal of the said _____ and inscribing their
[status]
names, the Agreement contained in Schedule "A" hereto attached and forming part of this by-law.

Add this next section if an existing or expired contract authorized in a by-law is to be repealed.

2. By-law(s) _____ is/are hereby repealed.

READ a first time this _____ day of _____, 19__.
READ a second time this _____ day of _____, 19__.
READ a third time and finally passed this _____ day of _____, 19__.

_____
MAYOR

_____
SECRETARY-TREASURER

APPENDIX I

EXAMPLE OF CONTRACT AMENDMENT AND MUNICIPAL AUTHORIZATION

NOTES ON EXAMPLE CONTRACT AMENDMENT

1. General

This Appendix contains the following:

(1) An example of a Municipal By-law authorizing the Mayor and the Secretary Treasurer to execute (i.e. sign) an amendment to an existing contract.

(2) An example of a contract amendment agreement between the Municipality and a Contractor.

2. How to Use These Examples

You can use these examples as a guide to preparing a contract amendment or a By-law. Blank spaces for dates and names and Notes to assist you in understanding and using the example have been provided.

_____ of _____
[status] [community name]

BY-LAW No. _____
[number]

A by-law of the _____ of _____ in the Northwest Territories to authorize the execution of a supplementary Agreement between the _____ of _____ and _____ to vary the terms of an Agreement dated _____ 19__ attached to By-Law No. ____ with respect to the _____

[brief description of operations or contract title]

PERSUANT to Section _____ of the Municipal Ordinance of the Northwest Territories,

WHEREAS the _____ of _____ and _____ entered into an Agreement dated _____ 19__,

AND WHEREAS it is desirable to review, reconsider and rewrite that Agreement,

NOW THEREFORE THE COUNCIL OF THE _____ of _____, in regular session duly assembled, enacts as follows:

1. The Mayor and Secretary-Treasurer are hereby authorized forthwith to execute on behalf of the _____ of _____, by affixing the Seal of the said _____ and inscribing their names, the Agreement contained in Schedule "A" hereto attached and forming part of this by-law.

Add this next section if an existing or expired contract authorized in a by-law is to be repealed.

2. By-law(s) _____ is/are hereby repealed.

READ a first time this _____ day of _____, 19__.
READ a second time this _____ day of _____, 19__.
READ a third time and finally passed this ____ day of _____, 19__.

_____
MAYOR

_____
SECRETARY-TREASURER

SCHEDULE "A"

TO BY-LAW _____

This Agreement made in triplicate this ____ day of _____ A.D. 19__,

BETWEEN:

THE _____ of _____, N.W.T.
[status] [community name]

hereinafter called the "_____",
[status]

AND _____
[contractor's name]

hereinafter called the "Contractor",

WITNESS:

THAT WHEREAS there exists an Agreement between the _____ and the
[status]
Contractor made the ____ day of _____ A.D. 19__, with respect to the
_____
[brief description of operations or contract title]

AND WHEREAS the _____ and the Contractor are desirous of varying
[status]
the terms and conditions of said Agreement

NOW THEREFORE the Parties hereto do hereby agree, covenant and declare as follows:

Specify the amendments or additions to the existing Agreement. The following examples of each.

1. That _____ of the Agreement dated _____
[section number, title]
19___, between the Parties is hereby deleted and the following substituted therefore:

Specify the amendment. Repeat this for each amendment.

2. That the following be included to form a part of the Agreement dated _____, 19__:

Specify the additions.

IN WITNESS WHEREOF the Parties hereto have executed this Agreement on the day and year first written.

for _____ [name of contractor]

_____

_____

_____

for The _____ [status] of _____ [community name]

_____

_____

_____

POOR

QUALITY

ORIGINAL